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1865/66

ANNUAL REPORT

AND

TRANSACTIONS

OF THE

PLYMOUTH INSTITUTION

AND

Devon and Cornwall

NATURAL HISTORY SOCIETY.

MAR 3 1969

VOLUME II. PART I.

1865-6.

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PLYMOUTH:
ISAIAH W. N. KEYS, 52, BEDFORD STREET.
1866.

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1866.

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SECRETARIES' REPORT.

1865-6.

The following is a list of the Lectures that have been read before the Society during the past session :—

1865.			
Oct.	2.	Conversazione	
,,	5.	Inaugural Address	The President.
,,	12.	Notes on two Pictures, Mr. Madox Brown's "Work," and Mr. Whistler's "Little White Girl"	Mr. J. Shelly
,,	19.	The Punishment of Death : the Expediency of its Abolition	,, J. Brooking Rowe.
,,	26.	The Flowering Plants of the Neighbourhood of Plymouth. Part III.	,, T. R. A. Briggs.
Nov.	2.	Huge Buildings : Remarks on some Recent Works	,, J. Hine.
,,	9.	The Chinese: Sketches of their History and Customs. Part II.	,, T. W. Coffin, Jun.
,,	16.	Workmen : their Societies and Strikes	,, A. P. Balkwill.
,,	23.	Recent Researches in Palestine ..	,, F. W. Gibbs, c.b.
,,	30.	Alexander Pope and the Literature of the Reign of Queen Anne ..	,, G. W. Hearle.
Dec.	7.	Classification of the Vertebrata ..	Rev. W. S. L. Szyrma, b.a.
,,	14.	Sir John Eliot of Port Eliot......	Mr. J. N. Bennett.
,,	21.	The Voice......................	,, A. P. Prowse.

1866.

Jan. 4.	Conversazione	
,, 11.	Ancient Books. Part I.	Mr. Rooker.
Jan. 18.	Ancient Books. Part II.	Mr. Rooker.
,, 25.	Handel: his Life and Works	,, S. Weekes
Feb. 1.	Science and Pseudo-Science. Sir W. R. Hamilton	,, W. J. Spry.
,, 8.	S. Ambrose, Bishop of Milan	,, J. Shelly.
,, 15.	La Familistère of Guise: a Workman's Home	,, J. P. Mann.
,, 22.	The Magistracy of England	,, T. C. Brian.
Mar. 1.	Spectrum Analysis	,, Vincent E. Noel, m.r.c.s.
,, 8.	Photography, from an Amateur's Point of View	,, W. Gage Tweedy, m.a.
,, 15.	Self-Education	Rev. W. S. L. Szyrma, m.a.
,, 22.	The Antiquity of the Earth	Mr. Pengelly, f.r.s.
,, 29.	Insect Life	Sir J. Lubbock, f.r.s.

Of these Lectures, one only was distinctly local in its character, viz., the continuation of Mr. Briggs's Notes on the Flowering Plants of the Neighbourhood of Plymouth. At the beginning of the second half of the session, Mr. Rooker, the President, read an unpublished Lecture, by Mr. Edwd. Baines, M.P., on "Ancient Books." Two vacancies that occurred were supplied by Mr. Shelly, who read a Lecture on "S. Ambrose," and the Rev. W. S. Lach Szyrma, who delivered a Lecture on "Self-Education."

A suggestion made by the President in his inaugural address well deserves the consideration of the Members. It was, that each in that department of art or science, literary or historical study with which he was most familiar, should set himself to gather materials for a future History of the Town of Plymouth—a history which may contain full and accurate information, not only concerning the town itself, the political events that have affected it, and the famous men who have lived in it, but also about the various objects of zoological, geological, and botanical interest in its immediate neighbourhood.

Already there has been collected in the papers published by this Society much information available for this purpose; but much more remains to be gathered, and it is hoped that several of the members will devote at least a portion of their leisure to this work.

At the beginning of the session, three gentlemen,—Dr. Cookworthy, Mr. J. H. Fuge, and the Rev. J. R. Fletcher, D.D., the survivors of the original founders of the Plymouth Institution, —were elected Honorary Members of the Society. Sir John Lubbock, F.R.S., has since been elected an Honorary Member, and has delivered to the Society a lecture on the "Transformations of Insect Life," an abstract of which appears in the Transactions.

At the Anniversary Meeting, May 1st, the following short papers were read: a discussion followed each.

Art Workmen	Mr. J. Shelly.
On an *Octopus vulgaris* recently acquired by the Society	,, J. Brooking Rowe, F.L.S.
On the metal Magnesium, experimentally illustrated	,, J. N. Hearder.

In June last, some members of the Society, with friends, united in an excursion to Tavistock, from which place they went on to Lydford, and visited various objects of interest in its neighbourhood. The members have had no other field-day during the past year. Two Conversaziones took place, one at the commencement of the session and the other at Christmas, but neither calls for any especial remark.

Specimens of the Porpoise *(Phocœna communis)* and the Great Pipe Fish *(Syngnathus acus)*, taken off the coast, were placed in the museum during the summer, and were exhibited in the hall at the first Conversazione of the session.

The Librarian has devoted some time to the examination and re-arrangement of the books.

The usual scientific periodicals have been received, and among others the following books have been added to the Library:—

Owen's History of the Vertebrata, vols. i. and ii., 8vo.
History of the Hemiptera (Heteroptera) by Douglas and Scott. 8vo. Ray Society.
The Geologist, vol. i., completing the set.
British Conchology, by J. Gwyn Jefferies, vol. iii.
Couch's British Fishes, completed.
History of Music, by Schelister.
Philosophie de la Musique.

Mr. W. Morrison, M.P., has presented to the Library a fine copy of Lyson's Devon and Cornwall (Magna Britannia), which had been under his direction handsomely bound by Rivière. For this he has received the thanks of the Council.

The Treasurer's Report will be found on the twelfth page. It will be seen that the debt has been reduced by a payment of £50., and £150. is now only owing.

Mr. T. R. Archer Briggs reports that the remarkable *Viola*, mentioned in the last year's report as having been found by him near Plympton S. Maurice, has since been identified by a Continental botanist, M. Jordan, with his own *permixta*, gathered in the neighbourhood of Lyons.

During the past season, Mr. Briggs has added to the Floras of both Devon and Cornwall, *Lepigonum rupicola*, *Sagina ciliata*, and *Galium tricorne;* to that of Devon alone, *Allium oleraceum;* to that of Cornwall, *Rosa tomentosa*, *Potentilla argentea*, and *Scirpus sylvaticus*. The naturalized *Lepidium Draba* he has detected near Horrabridge: the equally alien *Mimulus luteus* in both the Plym and Erme. The latter was observed last summer by one of your Secretaries in great abundance in Martindale and other valleys in the neighbourhood of Ullswater, and elsewhere in the Lake district.

Within twelve miles of Plymouth Mr. Briggs has found one or more new stations of *Barbarea intermedia*, *Hypericum undulatum*, *Trigonella ornithopodioïdes*, *Lotus angustissimus*, *L. hispidus*, *Spiræa*

Filipendula, *Rosa micrantha*, *Epilobium angustifolium*, *Fedia Auricula*, *Atropa Belladonna*, *Orobanche amethystea*, and *Centunculus minimus*. He has also collected two remarkable *Galia*, hybrids apparently between *Mollugo* and *verum*. These have been described, in the last Report of the Thirsk Botanical Exchange Club, from specimens forwarded to that Society by Mr. Briggs.

Mr. John Merrifield, F.R.A.S., has furnished us with an abstract of the Meteorological Register kept at the Navigation School, Gascoigne Place, Plymouth (lat. 50° 22′ 25″ N., long. 4° 7′ 16·5″ W.) from 1st July, 1865, to 30th June, 1866, which is subjoined.

J. BROOKING ROWE, } *Hon. Secs.*
J. SHELLY,

MONTH.	STANDARD BAROMETERS FOR MEAN LEVEL OF SEA, AT 32° FAHT.			SELF-REGISTERING THERMOMETERS *(Negretti & Zambra's).*					Average Dry Bulb for Month.	Average Wet Bulb for Month.
	Maximum for Month.	Minimum for Month.	Mean for Month.	Average Minimum for Month.	Average Maximum for Month.	Average Temperature for Month.	Maximum (in shade) for Month.	Minimum for Month.		
1865.										
July ..	30.348	29.799	29.969	54.5	74.3	64.4	83	44	65.2	60.7
August ..	30.319	29.427	29.884	53.1	72.8	62.95	80	42	61.6	59.0
September*	30.447	29.922	30.221	55.4	72.3	63.85	85	48	65.3	62.1
October ..	30.089	29.076	29.579	47.1	62.9	55	76	32	54.0	53
November †	30.397	28.840	29.824	39.7	53.8	46.75	57.5	30	45.9	45.1
December ‡	30.822	29.034	30.205	40.1	50.1	45.1	58	25	44.9	44.1
1866.										
January ¶	30.660	28.808	29.884	40.5	50.6	45.55	55	28	44.5	43.8
February ‖	30.331	28.602	29.776	36.5	49.4	42.95	56	25	41.9	40.8
March § ..	30.437	29.005	29.637	36.4	51.4	43.9	62	23	42.3	41.5
April ..	30.330	29.164	29.845	42.1	58.4	50.25	68	31	50.5	47.9
May	30.352	29.558	29.972	40.6	64.1	52.35	72	30	54.3	50.3
June ** ..	30.224	29.554	29.926	51.7	69.9	60.8	93	42	62.8	59

The observations are made between 8 and 9 a.m. The instruments are supplied by the Board of Trade and compared at Kew.

* Only one day (8th) the barometer stood at less than 30 inches.

† Gales on the 22nd and 25th. Latter part of month very stormy.

‡ Twice during the month there was a difference of 1½ inches in 4 days. Highest barometer for year on 15th.

¶ Severe gale on 11th. Only two nights the temperature below freezing.

‖ On 11th, barometer fell 1 inch in 8 hours, when was also lowest barometer.

§ On 23rd, a gale. Thermometer lowest for year on 3rd.

** Several days in this month thermometer stood above 80° in shade.

An Account of the Expenditure and Income of the Plymouth Institution,

FOR THE YEAR ENDING APRIL, 1866.

Dr.

	£.	s.	d.
To Conversaziones	7	8	6
,, Lighting	14	6	5
,, Repairs	4	14	2
,, Salaries	12	0	0
,, Printing	51	17	10
,, Insurance	2	0	6
,, Taxes		16	0
,, Interest	7	10	0
,, Incidentals	32	5	2
,, Amount paid off in reduction of the debt	50	0	0
,, Balance in hand	50	19	3
	£233	17	10

Examined and found correct, 5th April, 1866.

J. Boswarva, } Auditors.
J. L. Coffin, }

Cr.

	£.	s.	d.
By Balance in hand, as per last account	67	9	10
,, Subscriptions	130	14	6
,, Arrears	1	1	0
,, Rent of Hall	33	8	0
,, Admissions	1	4	6
	£233	17	10
By Balance in hand	£50	19	3

James Dabb, } Hon.
A. P. Prowse, } Treasurers.

ON THE

METAMORPHOSES OF INSECTS.

BY

SIR JOHN LUBBOCK, Bart. F.R.S M.R.I.

Pres. Ent. Soc. V.P. Lin. Soc. V.P. Ethn. Soc. F.S.A.

The subkingdom Annulosa, to which insects belong, is divided into five classes, namely, Annelida, Crustacea, Arachnida, Myriapoda, Insecta.

The Annelida, or worms, have a body consisting of more or less numerous segments, but without any jointed appendages.

The Crustacea, or crabs and lobsters, have a jointed body, and each segment usually bears a pair of appendages. They are aquatic in their habits.

The Arachnida, or spiders, possess four pairs of legs ; the body is divided into two parts, the cephalothorax and abdomen. The segments composing the abdomen bear no appendages. Spiders are aërial in their habits.

The Myriapoda, or centipedes, have a long body consisting of numerous segments, each of which bears a pair of legs.

The Insecta, or insects, have three pairs of legs. They are aërial in habits, and breathe by means of tracheæ or air-tubes, which ramify throughout the internal organs. The body is divided into three parts, the head, thorax, and abdomen.

In addition to the three pairs of legs, the thorax bears generally either two or four wings. The older naturalists collected the wingless forms into a special order—the Aptera ; but more extended observations have shown that each of the large orders or groups into which insects are divided contain some apterous forms. The female glow-worm and the working ants are familiar examples of this.

But though the presence of wings is the rule, and the division of insects into orders is founded in great measure on the characters afforded by these important organs, still they are present only in the mature state of the animal, and no known insect is born with wings.

Not only in the absence of wings, but also generally in many other important points, the young insect differs from the mature form, and the changes which it goes through are known as metamorphoses. Entomologists have generally considered the life of all insects to be divisible into four well-marked periods—that of the egg; the larva or caterpillar; the pupa or chrysalis; and, finally, the imago or perfect insect. It is true that in some orders, as, for instance, the Coleoptera (beetles), Hymenoptera (bees), Lepidoptera (butterflies), and Diptera (flies), the larvæ differ much more from the perfect insects than is the case in others, as, for instance, the Orthoptera (grasshoppers), or Heteroptera (bugs); but even in these latter the stages were still supposed to be well marked—that of the larva, by the entire absence of wings; that of the pupa, by the possession of rudimentary wings; finally, the perfect insect, by having perfect wings.

The lecturer then pointed out that, when the habits were alike, similar larvæ might be met with in very different families of insects. Thus, among beetles, the Melolontha (cockchafer), Anobium (deathwatch), and Chlamys are very similar in their larva state, although they belong to perfectly distinct families of beetles, namely, the Melolonthidæ, Ptinidæ, and Chrysomelidæ.

The same fact holds good even in larvæ belonging to different orders of insects. Those larvæ which, in the words of Mr. Herbert Spencer, are "symmetrically related to the environment," and which either are surrounded by their food, or which have it brought to them, are fat, legless, fleshy grubs or maggots. Such are almost all the larvæ of flies. So again, the Hymenopterous larvæ are generally of this character; whether they inhabit other insects, like those of the ichneumons; or live inside galls, like those of the Cynipidæ; or are enclosed in cells and fed by the perfect insects, like those of the bees; practically any great deviation from that which may be looked upon as the normal type, is unnecessary. The larvæ of beetles, on the contrary, are generally of a very different character. But there is one group, that of the weevils, which are internal feeders. The grub of a nut-weevil feeding inside a nut, is under very similar conditions to those of a Cynips-larva in a gall, or an Anthrax-larva living parasitically in a bee's cell, and we accordingly find that these larvæ, though belonging to three different orders of insects, very closely resemble one another.

To this type belong most Hymenopterous larvæ; but there are two exceptional groups, the Tenthredinidæ, or sawflies, and the Siricidæ. The larvæ of the Tenthredinidæ feed, like those of butterflies, on leaves, and in the general form of the body, in the possession of three pairs of legs and several pairs of abdominal prolegs, they very closely resemble ordinary caterpillars, and differ extremely from the ordinary type of Hymenopterous larvæ. In the same manner the larvæ of the Siricidæ, which are wood-borers, possess thoracic legs, and closely resemble the larvæ of some wood-boring beetles.

From these facts it may be concluded that the form of a larva depends more on the conditions in which it lives than on the form which it will ultimately assume. But this is shown still more clearly in the case of Sitaris, a small beetle which is parasitic on a species of solitary bee

(Anthophora), and the habits of which have been carefully observed and excellently described by a French naturalist, M. Fabre. The female Sitaris, which comes to maturity in August, never wanders far away from the sandy banks in which the Anthophora loves to burrow. At that time no Anthophoras are abroad, their period of maturity is not in autumn, but in spring, and consequently, though the bee is so necessary to the beetle, we are at once met with the remarkable fact that no perfect Sitaris ever saw one of the bees, and it is probable that no Anthophora has ever yet seen a Sitaris. The latter lays her eggs, which are about 2500 in number, in the burrow leading to the cell of the Anthophora. These eggs are hatched in September, and produce small, black, active larvæ, about 1-25 of an inch in length, with four eyes, two rather long antennæ, and six well-formed legs. But though evidently adapted for an active life the young larvæ remain quiet among their empty egg-shells until the spring. Then the Anthophora comes to maturity, and as it passes out along the burrow the young larvæ spring upon it. The male bees, however, leave their cells about a month before the females; consequently the larva first finds itself on the male bee, from which, however, at the first opportunity it passes to the female. She, poor thing, unconscious of her misfortune, proceeds to excavate her burrow in the usual manner, constructs the usual cell, and fills it with honey. On the honey she lays her egg, but at this moment the larva of Sitaris springs on to the egg and floats on it, as on a raft. It then tears open the egg and devours it, thus at once destroying a rival, and making its first meal. As it has by this time been seven months without food, this its first food must be very welcome. But it is necessary on another account. The larva in its first form, though beautifully fitted for its mode of life, is quite unsuited to live on honey in a bee's cell. Hence a change of form is necessary. The increase of size produced by devouring the egg enables the larva to change its skin, and it now emerges in a form very different indeed from the last. The eyes have disappeared, the legs and antennæ are rudimentary. The mouth is so placed that when the larva floats on the honey it is just below the surface, while the spiracles are arranged along the back so as to be just above it. Lastly, the belly is very protuberant, and thus prevents the larva from rolling, in which case the spiracles might be choked by the honey, and the insect suffocated. After living from thirty-five to forty days in this condition, during which it increases very considerably in size, the larva ceases to feed, and contracts into an ovoid body, resembling in many respects the so-called pupa of a fly. Within this, as in a case, it forms a new skin, and takes on a fourth form not very unlike the second. After four or five weeks it changes again into a chrysalis, from which finally the perfect beetle emerges.

Here then we find, firstly, a remarkable change of form accompanying a change of habits, and secondly, a case in which the life is divided into more than three well-marked stages. This phenomenon received from M. Fabre the name of Hypermetamorphosis. For some time the cases of Sitaris and Meloe were looked on as exceptional; but in 1862 the attention of the lecturer was called to the question by observing a somewhat similar case in Lonchoptera, a genus of small flies. Moreover, he found that in many species belonging to the Orthoptera and Hemiptera the stages were much less definite and more gradual than had hitherto been supposed.

In illustration of this he described the transformations of Chloëon (Ephemeridæ), and showed that the perfect form was attained through more than twenty changes of skin, each attended by a slight change of form. In its preparatory stages this insect lives in the water, but in the last two it becomes aërial. Sir John Lubbock had been so fortunate as to see more than once the passage from the aquatic to the aërial condition; the larva floated helplessly on the surface of the water, suddenly the skin burst, the insect sprang out of the back of its own head and fluttered away. The whole process occupied less than ten seconds.

The speaker in this case wished particularly to impress on his hearers, firstly, the gradual nature of the changes, and secondly, that some of them have no reference to the form of the perfect insect, but are entirely of an adaptational character. Thus, the young larva is born without branchiæ, and with two caudal appendages. It gradually acquires a thin tail and seven pairs of branchiæ, but the perfect insect has only two tails and no branchiæ. Thus, then, the changes which an insect undergoes are of two kinds, developmental and adaptational.

External forces act upon the larvæ as much as on the perfect insects. And we can thus understand the remarkable fact that some animals, which differ much when young, are very similar at maturity.

The speaker then entered into some theoretical considerations as to the nature and causes of metamorphoses, dividing the subject into three questions.

1stly. How these changes of form might have originated.

2ndly. Why they are, in insects, so abrupt in their character; and

3rdly. Why the pupa condition, a period of approximate immobility, should intervene between the active larva, and the still more active imago.

1. The changes of form depend on the early condition at which some insects quit the egg. There is reason to believe that all insects pass through the stage of fat, fleshy grubs, and subsequently acquire legs.* Some, however, are hatched in the first state, while others remain in the egg until they attain the second. In the former case additional changes are produced by the fact that external forces do not affect the larva in the same manner as the perfect insect; and thus there is a tendency to still greater differentiation.

2. The abruptness of the change is more apparent than real. The actual change itself is merely the withdrawal of the curtain, the casting

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* See, for instance, Professor Huxley's admirable memoir on Aphis, in the 'Linnean Transactions.'

of the old skin, by which the alterations which have perhaps been in preparation for days or even weeks, are rendered visible. In fact, there can be no great change in insects without a moult. Insects have no bones, and the muscles are attached to the skin, which therefore is necessarily hardened to afford them a solid and sufficient fulcrum. But it follows from this that no change of form can take place without a change of skin.

In Chloëon we have seen that each moult is accompanied by a slight change.

In caterpillars, on the contrary, there is little alteration during growth, and the changes are concentrated, so to say, on the last two moults. The advantage of this is obvious; the mouth, digestive, and other organs of the larva are very different from those of the perfect insect; and if the change from the one type to the other were gradual and slow, the insect would be liable to perish of starvation in the midst of plenty.

3. Similar considerations throw much light on the immobility of the pupa. The organs are altering so rapidly that they are unable to perform their functions. When the changes are gradual, as in Orthoptera, &c., there is no period of quiescence.

The speaker then pointed out the analogy between metamorphoses and the alternation of generations.

Many species of the lower animals are represented by two totally dissimilar forms; but, so far as the speaker knew, no explanation of this remarkable phenomenon had yet been given.

Through the metamorphoses of insects, however, we get a clue. When an animal is born in a state so early, that external forces act on it in one way, and on the perfect form in another, they tend to produce greater and greater differences between the two. As long as the external organs arrive at their mature form before the generative organs are fully developed, we have cases of metamorphosis; but if the reverse is the case, then alternation of generations is the result.

The same considerations explain why in alternation of generations the reproduction is almost invariably agamic in the one form. This is because impregnation requires the perfection both of external and internal organs; and if the phenomenon arises, as has just been suggested, from the fact that the internal organs arrive at maturity before the external ones, impregnation cannot take place, and reproduction will only result in those species which have the power of agamic multiplication.

However this may be, insects offer every gradation between simple growth and that phenomenon which is known as alternation of generations.

In the wingless Orthoptera, the young so closely resemble the perfect insects, that there is nothing which in ordinary language would be called even a metamorphosis.

In those Orthoptera which eventually acquire wings, there is of course a well-marked difference.

In Chloëon, though the changes are gradual, the difference between the larva and the imago is very considerable, and we have seen that the action of external forces produces changes which have no reference to the form of the perfect insect.

In caterpillars we have a typical class of metamorphoses.

Until recently, however, we knew of no case in which a larva produced more than one perfect insect.* Insects never multiply by buds, and almost always the external form is acquired before the organs of reproduction are mature. Recently, however, Professor Wagner of Kasan has discovered that the larvæ of certain Cecidomyias have the faculty of producing other larvæ, so that they present a true case of alternation of generations. Thus, then, we see that insects present every gradation from growth to alternation of generations; we see how, from a single fact, metamorphoses and alternate generations may have originated, and we find reason to suppose that in the course of time the latter phenomenon may become more frequent than it is at present.

It is, moreover, evident that there are in the animal and vegetable kingdoms two kinds of Dimorphism. The term has generally been applied to those cases in which—as in the ant and bee, in animals, and the Primulas among plants—the perfect individuals are divided into two forms. In fact, the sexes themselves constitute a kind of Dimorphism. In these cases the forms are not alternate. When, however, external forces act on the young in one manner, and on the mature form in another, they tend to produce different forms, which do not complement, but succeed, one another. I have elsewhere proposed to distinguish this form of dimorphism, under the name of Dieidism or Polyeidism. In Polymorphism the chain of being divides at the extremity; in Polyeidism it consists of dissimilar links.

Finally, the speaker said:—"The principal conclusions which I would impress on you this evening are:—

"1. That the presence of metamorphoses in insects depends, in great measure, at least, upon the early state in which they quit the egg.

"2. That metamorphoses are of two kinds—developmental and adaptational.

"3. That the apparent abruptness of the changes which they undergo arises in great measure from the hardness of their skin, which permits no gradual alteration of form, and which is itself rendered necessary in order to afford sufficient support to the muscles.

"4. That the immobility of the pupa or chrysalis depends on the rapidity of the changes going on in it.

"5. That although the majority of insects go through three well-marked stages after leaving the egg, still a large number arrive at maturity through a somewhat indefinite number of slight changes.

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* The instances in which certain insects breed while their wings are but imperfect, might here have been cited. But as there is much difference of opinion among entomologists as to these cases, I have thought it better to take one about which no question is likely to arise.

"6. That the form of the larva of each species depends in great measure on the conditions in which it lives.

"When an animal is hatched from the egg in an immature form, the external forces acting upon it are different from those which affect the mature form, and thus changes are produced in the young, bearing reference to its present wants rather than to its ultimate form.

"7. When the external organs arrive at this final form before the organs of reproduction are matured, these changes are known as metamorphoses; when, on the contrary, the organs of reproduction are functionally perfect before the external organs, or when the creature has the power of budding, then the phenomenon is known as alternation of generations.

"Insects present every gradation, from simple growth to alternation of generations.

"8. Thus, then, it appears probable that this remarkable phenomenon may have arisen from the simple circumstance that certain animals leave the egg at a very early stage of development: and that the external forces acting on the young are different from those which affect the mature form.

"9. The dimorphism thus produced differs in many important respects from the dimorphism of the mature form which we find, for instance, in the ants and bees; and it would therefore be convenient to distinguish it by a different name.

"But there is still another aspect under which, if time had permitted, the metamorphoses of insects might have been regarded. In one or two cases, indeed, I have sketched very briefly and imperfectly the habits and mode of life of particular insects. A whole course of lectures might be filled with such life histories. The various manners in which different insects provide for the wants of their young are most remarkable; and all the more so because these wants are so different from those of the perfect insects themselves.

"Thus, the butterfly which lives on honey, and did live on leaves, lays her eggs on a twig. She seems to feel that honey will not suit her young, and that the leaves will wither and fall before another spring comes round.

"The gnat, which lives in the air and feeds on blood, lays her eggs on the surface of water; and the sugar-loving housefly knows that very different food is necessary for her young.

"The nut-weevil chooses the embryo of the nut; the goat-moth the bark of the willow; the Rhipiphora braves the dangers of the wasp's nest; the Œstrus lays on cattle; the Ichneumon in caterpillars; the gall-fly in the still almost imperceptible bud; and some insects even in the eggs of others.

"Generally, the larvæ forage for themselves; but, in some cases, the mother supplies her young with food. Thus, the solitary wasp builds a cell and fills it with other insects. If, however, she imprisoned them while alive, their struggles would infallibly destroy her egg; if she killed them, they would soon decay, and the young larva, when hatched, would find, instead of a store of wholesome food, a mere mass of corruption. To avoid these two evils, the wasp stings her victim in such a manner as to pierce the centre of the nervous system, and the poison has the quality of paralyzing the victim without killing it. Thus deprived of all power of movement, but still alive, it remains some weeks motionless and yet fresh.

" But, perhaps the ants are the most remarkable of all. They tend their young, they build houses, they make wars, they keep slaves, they have domestic animals, and it is even said that in some cases they cultivate the ground.

" Nor must it be supposed that even now the habits of insects are anything like thoroughly known to us. In spite of Reaumur and De Geer, the two Hubers, and many other excellent observers, there is in this subject still a wide field for patient and conscientious labour; the observations already made have been far from exhausting the mine, though amply sufficient to prove the richness of the ore."

[J. L.]

FLORA OF DEVON AND CORNWALL.

BY

ISAIAH W. N. KEYS,

CURATOR OF BOTANY IN THE PLYMOUTH INSTITUTION AND DEVON AND CORNWALL
NATURAL HISTORY SOCIETY.

RANUNCULACEÆ—GERANIACEÆ.

PREFACE.

In this Flora the nomenclature and general plan of the *Manual of British Botany* by Professor Babington (fifth edition) have been adopted.

The only figures quoted are those of the *English Botany*, it being thought undesirable to refer to plates not easily accessible.

In cases where the stations are not authenticated by the Author, other authorities are affixed.

So far as the more common plants are concerned, it must not be inferred that the stations mentioned are all that are known. Even of the *rariores* the list is not in all instances exhausted. It is thought that a sufficient number of habitats is given to meet the requirements of students and collectors.

The observations as to the rarity, frequency, &c. of species (unless otherwise expressed) refer to their distribution in Great Britain, not exclusively to Devon and Cornwall. In some instances the census of these counties would be different.

The letters D. and C. after the names of places stand respectively for "Devon" and "Cornwall." Mount Edgcumbe, Maker, and some adjacent stations, being geographically in Cornwall, although politically not so, are regarded as Cornish habitats.

The Author tenders his cordial thanks to his correspondents for the assistance they have rendered; and especially to Mr. Hewett Cottrell Watson, who kindly furnished him with the localities of many of the less familiar species; to Mr. T. R. Archer Briggs and Mr. Parfitt, who both supplied him with MS. lists; and to Mr. Fredk. P. Balkwill, who collected for him in Cornwall many of the local and other interesting plants. He is also indebted to Mr. F. H. Goulding for an inspection of the herbarium of the late Mr. J. Banker, now in his possession. An MS. list of the plants in the herbarium of the Royal Horticultural Society of Cornwall, kindly lent by the late Miss Elizabeth A. Warren, has also been of considerable service.

The *fasciculus* now presented comprehends Orders I. to XIX. of the Flowering Plants (Ranunculaceæ to Geraniaceæ). The Author trusts it will not be unacceptable to the members. He proposes, as opportunity permits, to proceed with the work. Many imperfections may doubtless be detected; but, from the nature of the subject, he craves some indulgence. Absolute accuracy is, he ventures to think, scarcely to be attained. He will be happy to receive corrections, information, suggestions, or advice.

Bedford Street, Plymouth,
October 1st, 1866.

ABBREVIATIONS.

TITLES OF BOOKS.

A.N.H.	..Annals of Natural History.
Bab. Man.	..Babington's Manual of British Botany.
B.H.P.	..Besley's Handbook of Penzance.
Bot. Gaz.	..Botanical Gazette.
Cyb. Brit.	..Watson's Cybele Britannica.
C.B.S.	..Supplement to C. B.
E.B.	..English Botany.
E.B.S.	..Supplement to E. B.
Fl. Dev.	..Flora Devoniensis.
Fl. Tot.	..Hannaford's Flora Tottoniensis. (Hannaford, Totnes.)
Fl. Sid.	..Flora Sidostiensis. (Hoyte, Sidmouth).
Nat.	..The Naturalist.
N.B.G.	..Watson's New Botanist's Guide.
Journ. Bot.	..Journal of Botany.
N.D.H.	..The North Devon Handbook. (Banfield, Ilfracombe.)
P. & D. Fl.	..Banks's Plymouth and Devonport Flora.
Peramb. Dart. *Per. Dart.*	Moore's Perambulation of Dartmoor.
Phytol.	..The Phytologist.
Polytech. 1856	..Report of the Royal Cornwall Polytechnic Society of that year.
Rav.	..Ravenshaw's Flowering Plants and Ferns of Devonshire.
W.D. & C. Fl.	..Jacob's West Devon and Cornwall Flora.

NAMES OF PERSONS.

Atw.	..Mr. M. M. Atwood.
Bab.	..Professor Babington.
Balkw.	..Mr. F. P. Balkwill.
Bank.	..Mr. J. Banker.
Benn.	..Mr. E. T. Bennett.
Briggs	..Mr. T. R. Archer Briggs.
Clark	..Mr. Thomas Clark.
Cocks	..Mr. W. P. Cocks.
Couch	..Mr. J. Couch.
Curn.	..Mr. W. Curnow.
Gibs.	..Mr. G. S. Gibson.
Gould.	..Mr. F. H. Goulding.
Han.	..Mr. S. Hannaford.
Hore	..Rev. W. S. Hore.
Henf.	..Mr. A. Henfrey.
Jac. *Jacob*	Rev. J. Jacob, LL.D.
Johns	..Rev. C. A. Johns.
Jord.	..Mr. R. C. R. Jordan.
Jul.	..Rev. R. A. Julian.
Lees	..Mr. E. Lees.
Maw	..Mr. George Maw.
Miss H.	..Miss Harrison.
Miss W.	..Miss Elizabeth A. Warren.
Parf.	..Mr. Parfitt.
Pasc.	..Mr. F. P. Pascoe.
Read.	..Mr. J. J. Reading.
Towns.	..Mr. F. Townsend.
Ward	..Mr. J. Ward.
Wats.	..Mr. H. C. Watson.

OTHER ABBREVIATIONS, SIGNS, ETC.

o ..	..Implies that the authority for the locality requires corroboration.
H.S.Herb.	..After the name of a place shows that a specimen from that locality is in the herbarium of the Royal Horticultural Society of Cornwall.
sp. ..	..Before the name of a person shows that an authentic specimen has been seen by him.
! ..	..After the name of a place shows that a specimen from that locality is in the herbarium of the Plymouth Institution and Devon and Cornwall Natural History Society.

Native Country.

† ..	..Possibly introduced, but now having the appearance of being a true native.
‡ ..	..Probably introduced, but admitting of some slight doubt on the subject.
* ..	..Certainly naturalized.
[ ] ..	..Although naturalized, having very slender claims to be considered an aboriginal native, &c. *Vide* Bab. Man. 5th ed. v.

FLORA

OF

DEVON AND CORNWALL.

I. FLOWERING PLANTS.

Class I. DICOTYLEDONES or EXOGENS.

Division I. THALAMIFLORÆ.

Order I. RANUNCULACEÆ.

Clematis *Linn.* Traveller's Joy.

C. Vitalba (L.)—*E.B.* 612.—Hedges and thickets on a calcareous soil. Crabtree, near Plymouth. Pomphlet, Plymstock: *Briggs.* Hedge on Newton road; Allerly; Biltor; Exeter road: *Fl. Tot.* Near Wear Gifford: *Maw* in *Phytol.* 1853, p. 790. Braunton and Torrington: *Rav.* D.—Cremyll, Maker!. Near Alverton bridge, Penzance: *Gibs.* in *Phytol.* 1846, p. 678. Penryn: *Polytech.* 1856. C.

Thalictrum *Linn.* Meadow-Rue.

T. minus (L.)—*E.B.* 11.—Sand-hills and stony places. Babbicombe; Anstis cove; Berry head!: *Hore.* D.—"Sand-hills at Kennuck cove," Land's-end: *Johns* in *Phytol.* 1847, p. 906. St. Kevern: *Miss W.* (H. S. Herb.) C. *Lesser Meadow-Rue.*

T. flavum (L.)—*E.B.* 367.—In wet fields. Bridge at Bishop's Clyst: *Fl. Dev.* D.—"Formerly grew at Kennuck cove." Rev. C. A. Johns could not find it in 1846: *vide* Phytol. 1847, p. 725. C. *Common Meadow-Rue.*

Anemone *Linn.*

A. nemorosa (L.)—*E.B.* 355.—Groves and thickets, common. Bickleigh vale!; left bank of the Plym, near Longbridge. A variety with "red" flowers near Hood cottage on the Dart: *Fl. Tot.* D.—Falmouth: *Polytech.* 1856. C. *Wind-flower.*

[*A. apennina* (L.)—*E.B.* 1062.—Scarcely naturalized. Kingsbridge!: *Balkw.* Stoke wood, near Exeter: *Rav.*] D. *Blue Mountain Anemone.*

[*A ranunculoïdes* (L.)—*E.B.* 1484.—A very doubtful native. It is said to grow in woods near Totnes: *Rav.*] D. *Yellow Wood Anemone.*

Myosurus *Linn.* Mousetail.

M. minimus (L.)—*E.B.* 435.—In damp places in fields. Cliffs near Exmouth: *Fl. Dev.* D.

Ranunculus *Linn.* Crowfoot.

R. trichophyllus (Chaix). Ponds and ditches. Crabtree!: *Briggs* in *Journ. Bot.* i. 376. D. *Water Fennel.*

R. aquatilis (L.), which is reported for many places in Devon and Cornwall, has been separated by Professor Babington into several species, only one of which, viz. *R. trichophyllus* (Chaix) has yet been recorded as found in these counties.

R. tripartitus (DC.)—*E.B.S.* 2946.—Streams. Near the Land's-end (sp. *Wats.* MS.) C.

R. Baudotii (Godr.) Slightly brackish water, or near the sea. Swanpool, plentiful: *Polytech.* 1856. Scilly islands: *Towns.* in *Journ. Bot.* ii. 106. C.

R. circinatus (Sibth.)—*E B.S.* 2869.—Streams and ponds. Barton, near Torquay: *Rav.* D.

R. fluitans (Lam.)—*E.B.S.* 2870.—Rivers. Mouth of the Otter: *Fl. Sid.* Dartmoor; near Umberleigh: *Rav.* D.—Glendurgan, "rare:" *Polytech.* 1856. C.

R. cœnosus (Guss.)—*R. Lenormandi* E.B.S. 2930. — Shallow ponds or mud. Shaugh!; Dartmoor; near Virtuous Lady mine; Moretonhampstead. Near Exeter; Rackenford; Salcombe hill; Lundy island: *Rav.* D.—Near St. Neot. Mr. Hewitt Cottrell Watson thinks he saw it in West Cornwall: *C.B.S.* C.

R. hederaceus (L.)—*E.B.* 2003.—Shallow ponds or mud. Common about Plymouth!; Tavistock. D.—Torpoint. Common in Cornwall: *Pasc.* in *Bot. Gaz.* ii. 37. Falmouth: *Polytech.* 1856. C. *Ivy Crowfoot.*

R. sceleratus (L.)—*E.B.* 681.—By and in ditches and ponds. Laira and Chelson meadow!, near Plymouth; Lophill on r. Tavy. Topsham; Lympstone; Exmouth; Dawlish: *Fl. Dev.* Torquay; Tiverton; Braunton; near Ilfracombe: *Rav.* River Otter, *Fl. Sid.* D.—Between Penzance and Marazion; Lostwithiel. Swanpool: *Polytech.* 1856. Not uncommon in Cornwall: *Pasc.* in *Bot. Gaz.* ii. 38. C. *Celery-leaved Crowfoot.*

R. gramineus (L.) inserted in Ravenshaw's List of Devonshire Plants, on the authority of the *Phytologist*, must be omitted, its discovery on Lundy island by Mr. Etheridge (*vide* Phytol. *n.s.* i. 120) having been subsequently disowned.

R. Flammula (L.)—*E.B.* 387.—In wet places. Compton and Manadon Wood!, near Plymouth; Bickleigh; Roborough down; Tavistock. Banks of the Dart!: *Hore.* Hartland: *Rav.* D.—Between Torpoint and St. John's. Falmouth: *Polytech.* 1856. C. *Lesser Spearwort.*

—— *β. reptans* (Lightf.) Braunton burrows: *Maw* (1850) in *Bot. Gaz.* ii. 305, and *Rav.* D.— Mylor: *Miss W.* (H. S. Herb.) C.

R. Lingua (L.)—*E.B.* 100.—In marshy places and ditches, rather rare as a British plant. Hartland and Lundy island; Topsham : *Rav.* Harcombe : *Fl. Sid.* D. — Gunwalloe, near Helston : *Johns* (Pasc. *in* Bot. Gaz. ii. 37). C. *Great Spearwort.*

R. Ficaria (L.)—*E.B.* 584. — Damp and rather shady places, common. D. and C. *Pilewort.*

R auricomus (L.)—*E.B.* 624.—Woods and thickets. Manadon wood !, near Plymouth. Near Exeter ; Tiverton ; Chudleigh ; Berry Pomeroy : *Rav.* D. —Merther woods, near Helston : *Johns* (H. S. Herb.) C. *Goldilocks.*

This plant is said, in Babington's *Manual*, to be common ; but we do not find it so here. Manadon wood is its only recorded habitat in the vicinity of Plymouth.

R. acris (L.)—*E.B.* 652.—Meadows and pastures. Common. D. ! and C. *Upright Crowfoot.*

R. repens (L.)—*E.B.* 516.—Meadows and pastures. Common. D. ! and C. *Creeping Crowfoot.*

R. bulbosus (L.)—*E B.* 515.—Meadows and pastures. Common. D. and C. *Bulbous Crowfoot.*

R. hirsutus (Curt.)—*E.B.* 1504.—Waste land and corn-fields, rare. Near Heavitree bridge (?) : *Rav.* Catdown, Plymouth, introduced (May, 1863) ; by the r. Walkham, at Horrabridge (May 9th, 1865) : *Briggs.* D. — St. John's : *Briggs* in *Phytol.* n.s. v. 368. Anderton, Maker : *Briggs.* Trevethan lane, " not common :" *Polytech.* 1856. C. *Pale hairy Crowfoot.*

This plant is scarcely indigenous to Devonshire. It has not a place in the Supplement to Watson's *Cybele Britannica* (1860) ; it is inserted with doubt in Ravenshaw's List ; and is regarded by Mr. Briggs as introduced. I am not sure that its Cornish claims are much better supported.

† *R. arvensis* (L.)—*E.B.* 135.—Corn-fields. Near Exeter ; Withecombe wood, near Exmouth : *Rav.* About Totnes " occasionally :" *Fl. Tot.* D.—Falmouth, " rather rare :" *Polytech.* 1856. C. *Corn Crowfoot.*

R. parviflorus (L.)—*E.B.* 120.—Corn-fields and dry banks. Lipson, and about Plymouth generally. Near Bideford : *Maw* in *Phytol.*

1853, p. 790. Chudleigh; Ashburton; Ilsington; North Bovey: *Fl. Dev.* Ide, near Exeter; Rock walk, Torquay: *Rav.* Near Barnstaple; Salcombe: *Fl. Sid.* D.! — Between Torpoint and Antony; between Cawsand and Rame; Maker. Tregantle!: *Balkw.* Mousehole, near Penzance: *Curn.* in *Phytol.* 1844, p. 1144. Falmouth, "rather rare:" *Polytech.* 1856. C. *Small-flowered Crowfoot.*

Although our two counties furnish so many habitats for this species, it does not appear to be generally distributed throughout Great Britain. It is mentioned by Babington as *rare.*

Caltha *Linn.* Marsh Marigold.

C. palustris (L.)—*E.B.* 506.—Marshy places. Manadon wood, near Plymouth; Plympton!; near Plym bridge; between Yealmpton and Plympton; near Manaton; banks of the Teign. Efford!, near Plymouth: *Balkw.* D.—St. Columb: *H. S. Herb.* Common in the central parts of Cornwall: *Pasc.* in *Bot. Gaz.* ii 38. C.

—— *β. minor* (DC.) Dartmoor: *Rav.* D.

Trollius *Linn.* Globe Flower.

T. europæus (L.)—*E.B.* 28.—"Antony, near the bathing house, the relic of some garden most probably:" *P. & D. Fl.* C.

As the proper habitat of this plant is in damp mountain pastures, it would not have been admitted into this list, but from deference to the late author of *P. & D. Fl.*

Helleborus *Linn.* Hellebore.

H. viridis (L.)—*E.B.* 200.—Thickets on a calcareous soil. Orchard at Weston mills!, near Plymouth. Near Newton: *Jord.* in *Phytol.* 1843, p. 827. Orchards at Ilsington; St. Mary Church: *Fl. Dev.* Staverton woods: *Fl. Tot.* Chelstone, near Torquay: *Rav.* D.—Zimmermann cottage, near Penzance: *Curn.* in *Phytol.* 1844, p. 1143. Falmouth: *Polytech.* 1856. C. *Green Hellebore. Bear's-foot.*

H. fœtidus (L.)—*E.B.* 613.—In a thicket at Widey!, on Manadon hill, near Plymouth (questionably wild). Torquay: *Rav.* D.

—Near Bodmin: *Ward* (Pasc. *in* Bot. Gaz. ii. 38). Same locality: *H. S. Herb.* C. *Stinking Hellebore. Setterwort.*

Aquilegia *Linn.* Columbine.

A. vulgaris (L.)—*E.B.* 297.—Woods, thickets, and borders of heaths. Banks of r. Plym!; quarries and embankments near Saltram; Plymstock; Leigham, near Plymouth. Woods at Teignmouth: *Jord.* in *Phytol.* 1843, p. 827. Chudleigh; Holne-chase; Chambercombe; Tiverton, &c.: *Rav.* D.— Near St. Neot. Near Hayle: *Gibs.* in *Phytol.* 1846, p. 678. Falmouth, "rather plentiful:" *Polytech.* 1856. C.

Hooker says of this plant (speaking of Great Britain at large) that it is found in "several places;" Babington (referring to the same area) says it is "not common." It is however abundant in the counties of Devon and Cornwall (particularly in the neighbourhood of Plymouth, on both sides of the Tamar).

Delphinium *Linn.* Larkspur.

* *D. Consolida* (L.)—*E.B.* 1839.—Teignmouth, "rare:" *Jord.* in *Phytol.* 1843, p. 827. D.—"A single specimen found on Hilly common, Cardynham:" *H. S. Herb.* C.

This plant is included in Mr. Watson's list (1860) for Devon and Cornwall, but with an indication that the authority for the locality requires corroboration.

Aconitum *Linn.* Monk's-hood.

† *A. Napellus* (L.)—*E.B.S.* 2730.—Banks of rivers and brooks. Orchard at Weston mills, near Plymouth; Widey, near Plymouth. Manadon!, near Plymouth: *Balkw.* Harpford wood, near Sidmouth: *Fl. Sid.* Near Crediton; *Rav.* Banks of the Dart: *Han.* in *Nat.* i. 199. Below Staverton bridge: *N.B.G.* Near Barnstaple: *Ward* in *Phytol.* 1842, p. 21. D.—Trelew, Mylor, "most abundant:" *Miss W.* (H. S. Herb.) C.

Hardly to be considered truly wild in these counties. As if its wildness were in most cases questionable, Hooker says it is "'undoubtedly wild' in several places in Denbighshire." According to Babington, it is "rare," which could be scarcely said of it, if it were truly wild in all the habitats cited in this list.

Order II. BERBERIDACEÆ.

Berberis *Linn.* Barberry.

B. vulgaris (L.)—*E.B.* 49.—Hedges and thickets. Waste ground in front of the cottage by Shaugh-bridge (not wild I suspect). Chudleigh; Ilsington: *Fl. Dev.* Sidbury; Shiphay; near Ilfracombe: *Rav.* Near Westleigh church, North Devon: *Maw* in *Phytol.* 1853, p. 791. D. — Between Torpoint and St. John's: *Briggs* in *Phytol.* n.s. v. 368. Lanner: *Miss W.* (H. S. Herb.) C.

Order III. NYMPHÆACEÆ.

Nymphæa *Linn.* White Water-Lily.

N. alba (L.) —*E.B.* 160.—Slow rivers, lakes and clear ditches. Escott; Larkbere, near Ottery: *Fl. Sid.* Powderham; Clyst St. George: *Rav.* D. — Chyangall moor, near Penzance: *Gibs.* in *Phytol.* 1846, p. 678. Mainporth: *Miss W.* (H. S. Herb.) Mr. Moorman's ponds, "doubtfully wild:" *Polytech.* 1856. C.

Nuphar *Sm.* Yellow Water-Lily.

N. lutea (Sm.)—*E.B.* 159.—Lakes and ditches. In the Exe and Otter rivers: *Rav.* Dartmoor: *Peramb. Dart.* D. *Brandy-bottle.*

Order IV. PAPAVERACEÆ.

Papaver *Linn.* Poppy.

† *P. Argemone* (L.)—*E.B.* 643.—In corn-fields and on waste ground. Staddon heights!; and on the South Devon Railway!, Crabtree, near Plymouth. Exmouth; near Exeter; Ilsington; North Bovey: *Fl. Dev.* (Mr. T. R. A. Briggs gathered it there in September, 1863.) Near Westleigh, North Devon: *Maw* in *Phytol.* 1853, p. 791. Ilfracombe church-yard: *Rav.* D. — Between Torpoint and St. John's: *Briggs* in *Phytol.* n.s. v. 368. Falmouth: *Polytech.* 1856. C. *Long-prickly-headed Poppy.*

† *P. hybridum* (L.)—*E.B.* 43.—Sandy fields. Staddon heights, near Plymouth; Wembury!. Near Dawlish: *Jord.* in *Phytol.* 1843, p. 827. Torquay; near Exmouth; near Ilfracombe: *Rav.* Near Westleigh, North Devon: *Maw* in *Phytol.* 1853, p. 791. D.—Bude: *Gibs.* in *Phytol.* 1846, p. 681. Near Mainporth: *Polytech.* 1856. C. Marked "rare" in Babington's *Manual. Round-rough-headed Poppy.*

† *P. Rhœas* (L.)—*E.B.* 645.—In arable fields, common. D.! and C. *Common red Poppy. Corn Rose.*

The variety with spreading hairs on the peduncles (*β. strigosum* Bönningh.) is not uncommon. I have noticed it this year between Saltash and Trematon!, Cornwall.

† *P. dubium* (L. ?)—*E.B.* 644.—Sides of fields. Crabtree, near Plymouth (1861). Catdown quarries!, Plymouth: *Hore.* Near Ilfracombe: *Rav.* Near North Bovey, growing with *P. Argemone:* Briggs (*Sep.*, 1863). D.—Falmouth: *Polytech.* 1856. Mr. F. P. Pascoe says, in *Bot. Gaz.* ii. 38, "I have received two or three Cornish localities for this plant: * * * it may not be uncommon." Scilly islands: *Towns.* in *Journ. Bot.* ii. 107. C. *Long-smooth-headed Poppy.*

‡ *P. somniferum* (L.)—*E.B.* 2145.—On sandy ground near the sea, rare. Near Sidmouth: *Hore* in *Phytol.* 1842, p. 163. Near Branscombe: *Rav.*, where it is said with reference to both the localities named, "perhaps introduced." The Rev. W. S. Hore says nothing, however, in the article quoted, to this effect, with regard to the Sidmouth habitat. D.—Penzance: *Hore*, on the authority of *Wats.* in *Phytol.* 1842, p. 163. Falmouth, "an outcast from gardens:" *Polytech.* 1856. C. *White Poppy.*

Meconopsis *Vig.* Welsh Poppy.

M. cambrica (Vig.)—*E.B.* 66.—Rocky and shady places, rare. Near Ivybridge, but doubtfully wild (1849). Lydford: *Hore.* Endsleigh; Dunterton; near Lynton: *Fl. Dev.* Near Ilfracombe: *Rav.*

Borders of the East and West Lyn : *Clark* in *Phytol.* 1852, p. 742. Southmolton, North Devon : *Maw* in *Bot. Gaz.* ii. 305, who says, " but I should think not indigenous." D. — Banks of the Tamar, near Calstock : *Johns* (H. S. Herb.) C.

If the plant grew wild in the stations recorded by the Rev. W. S. Hore and the Rev. C. A. Johns, it would be interesting to hear of its being found in either of them at the present time, inasmuch as both localities are within a few miles of Plymouth. I have searched in vain for it at Lydford (lastly in 1866), and have never met with it in Cornwall.

Glaucium *Tourn.* Horned Poppy.

G. luteum (Scop.)—*E.B.*8.—Bovisand. Wembury: *W.D.& C.Fl.* Goodrington sands : *Fl. Tot.* Paignton sands : *Rav.* Teignmouth : *Jord.* in *Phytol.* 1843, p. 827. Braunton burrows ; Instow burrow : *Maw* in *Phytol.* 1853, p. 787. D. — Whitsand bay ! ; abundant on waste ground and sandy fields sloping to the sea in front of Tregantle fort, 1866. Near Marazion : *Gibs.* in *Phytol.* 1846, p. 677. Gwyllynvase, &c. : *Polytech.* 1856.

Chelidonium *Linn.* Celandine.

† *C. majus* (L.)—*E.B.*1581.—Waste places and old walls. Compton, near Plymouth ; Cornwood ; Ivybridge ! ; Shaugh ; Lophill ; Cudlip town, near Tavistock ; near Alphington ; Portlemouth ; Moretonhampstead ; Lustleigh. Near Torquay ; Exeter ; Sidford ; Lee and Bittadon, near Ilfracombe : *Rav.* Westleigh, North Devon : *Maw* in *Phytol.* 1853, p. 791. D. — Rame ; Weir head !, r. Tamar ; Tideford, near St. Germans. Sparnon and Penryn, " rare : " *Polytech.* 1856. C.

Order V.—FUMARIACEÆ.

Corydalis *Cand.*

* *C. lutea* (DC.)—*E.B.* 588.—Naturalized on old walls. Efford, near Plymouth. About Beerferris and Beeralston ; Totnes ; Bishop's Tawton : *N.B.G.* Colyton : *Fl. Sid.* Harpford, near Sidmouth : *Atw.* in *Phytol.* 1853, p. 1097 Cockington : *Rav.* Broomborough ; Bow-

don: *Fl. Tot.* Near Newton: *Jord.* in *Phytol.* 1843, p. 828. D.—Millbrook!: *Read.* Bodmin: *H. S. Herb.* C. *Yellow Fumitory.*

C. claviculata (DC.)—*E.B.* 103.—Bushy places in hilly districts. Dewerstone and adjacent rocks, Shaugh!; Bickleigh; Staddon heights!, near Plymouth; Sheepstor; rocks on the banks of the Teign; Manaton; Lustleigh cleave. Wistman's wood, Dartmoor; Ilsington; Mamhead: *Fl. Dev.* Two Bridges, Dartmoor: *N.B.G.* Meadfoot; Holne chase; Cadleigh, near Tiverton: *Rav.* Near Broomborough; near Bowdon lodge: *Fl. Tot.* D.—Mawgan: *H. S. Herb.* Mr. F. P. Pascoe has found it in "four localities at least" in Cornwall: *vide* Bot. Gaz. ii. 38. C. *White Climbing Fumitory.*

Fumaria *Linn.* Fumitory.

F. pallidiflora (Jord.) Borders of fields. Lee, near Ilfracombe (August, 1863); Ilfracombe (1863): *Bab.* and *Briggs.* Salcombe: *Sowerby's Botany*, ed. Syme. D.

F. confusa (Jord.) Borders of fields. In a field by the Exeter road, about a mile from Dawlish: *Henf.* in *Bot. Gaz.* i. 193. D.—Tintagel castle: *Mr. Borrer* (vide *Bot. Gaz.* i. 61). Scilly islands: *Towns.* in *Journ. Bot.* ii. 107. C.

Mr. Henfrey calls this plant *F. agraria* Lag.; but as that name belongs to an African and Spanish plant not at all related to our species, Professor Babington dropped it in his paper upon the genus, and the same species now stands in his *Manual* as *F. confusa.*

F. officinalis (L.)—*E.B.* 589.—Fields and edges, common. D. & C. *Common Fumitory.*

F. parviflora (Lam.)—*E.B.* 590.—Saltram, near Plymouth: *Capt. M'Adam.* Teignmouth; Tavistock; Barnstaple: *Rav.* D. *Least-flowered Fumitory.*

In Babington's *Manual* (5th ed. 1862) the distribution of this species is confined to Kent, Essex, and Cambridge. Watson's *Cyb. Brit.* (Sup. i. 1860) does not recognise it as a Devonshire or Cornish plant. Capt. M'Adam told me, however, several years since, that he found it at Saltram. I have never seen it there; nor have I had an opportunity to corroborat the localities named by the Rev. T. F. Ravenshaw.

F. Vaillantii (Lois.)—*E.B.S.* 2877.—" Fields in the South and East [of England] rare."—*Bab. Man.* Not registered as occurring in Devon or Cornwall in Sup. to *Cyb. Brit.* (1860). Rev. T. F. Ravenshaw inserts it, however, in his List (also 1860) as found on the "north side of Warberry hill, Torquay." D.

Order VI.—CRUCIFERÆ.

Matthiola *R. Br.* Stock

M. sinuata (R. Br.)—*E.B.* 462.—Sea-coast. Saunton rocks, N. Dev.; Downend, near Braunton: *Rav.* Near Barnstaple: *Ward* in *Phytol.* 1842, p. 21. D.—It has also been found in Cornwall (*auct.* Ray: *vide* N.B.G., &c.); but I have no reference to habitats. C. *Sea Stock.*

Cheiranthus *Linn.* Wallflower.

* *C. Cheiri* (L.)—*E.B.* 1934.—Old walls. D. and C.

Nasturtium *R. Br.* Water Cress.

N. officinale (R. Br.)—*E.B.* 855.—Running water, common. D. and C. *Water-Cress.*

N. sylvestre (R. Br.)—*E.B.* 2324.—River banks and wet places. Banks of the Tavy, near Maristow!: *W.D. & C. Fl.* It has been collected there by Mr. F. H. Goulding. Near Woodford bridge: *Fl. Dev.* By the r. Tavy at Tavistock, and by the r. Walkham: *Briggs.* D. — Ditch at Pentuan: *Pasc.* in *Bot. Gaz.* ii. 38. C. *Creeping Nasturtium.*

N. palustre (DC.)—*N. terrestre* Sm., *E.B.* 1747.—Wet places. By the line of the S. D. Railway at Exeter: *Briggs.* Side of the river at Exewick: *Fl. Dev.* D.—Branches of the Tamar: *Johns* and *Jacob* (auct. *F. P. Pascoe* in *Bot. Gaz.* ii. 38). Banks of the Lynher, near St. Germans: *W. D. & C. Fl.* C. *Marsh Nasturtium.*

Barbarea *R. Br.* Rocket.

B. vulgaris (R. Br.)—*E.B.* 443.—In damp places. Not uncommon about Plymouth; Plymstock!. D.—Between Crumplehorn and Lancellos. Between Millbrook and Crafthole; between Helford ferry and Helston: *W.D. & C.Fl.* *H. S. Herb.*: (col. *Miss W.*) C. *Yellow Rocket.*

† *B. intermedia* (Bor.) "Plentiful in a field at Common wood," near Plymouth (May, 1865): *Briggs* in *Journ. Bot.* iii. 349. D.

‡ *B. præcox* (R. Br.)—*E.B.* 1129. *B. patula* Fries.—Hedges and waste places. A South of England plant. Frequent about Plymouth. Dawlish; Newton; Torquay: *Rav.* Honiton; Bovey Tracey; King's Teignton: *N.B.G.* D.—Cawsand!. Between Polcarras and Parrcombe: *W. D. & C. Fl.* C. *Early Winter-Cress.*

Arabis *Linn.* Rock-Cress.

A. hirsuta (R. Br.)—*E.B.* 587.—Old walls and stony banks. Mountwise, Devonport (1846); Turnchapel!, Plymstock; between Pennycomequick and Stoke (1849). Near Plymstock and Oreston; near Yealm bridge: *Briggs.* Anstice cove, Torquay: *Lees* in *Phytol.* 1851, p. 240. Ilsington; Lincombe: *Fl. Sid.* Totnes: *Han.* in *Nat.* ii. 225. D.—Near Hayle: *H. S. Herb.* North coast of Cornwall: *Pasc.* in *Bot. Gaz.* ii. 38. C. *Hairy Rock-Cress.*

It may be worth mentioning that this plant—certainly now not common in the neighbourhood of Plymouth—was, in the time of Dr. Jacob (*vide* W. D. & C. Fl.), "plentiful about Turnchapel and walls at the bottom of Catherine-street, Devonport, and the Laboratory, Mountwise."

A. petræa (Lam.)—*E.B.* 469.—Wigvor down, near Meavy: *Fl. Dev.* D. *Alpine Rock-Cress.*

Mr. H. C. Watson admits this plant into his Devonshire list (*Cyb. Brit.* Sup. i.), but stigmatised thus (o), implying that the authority for the locality requires corroboration. Its alpine habit (*vide* Br. Fl. 5th ed. p. 26, and Bab. Man. 5th ed. p. 24) almost forbids the belief that it has ever been met with here.

Cardamine *Linn.* Bitter-Cress.

C. impatiens (L.)—*E.B.* 80.—Hilly districts, preferring limestone. Ashton, near Exeter: *Rev. R. Roberts* (auct. *Mr. Parfitt*, Exeter). Near Bideford: *Maw* in *Phytol.* 1853, p. 791. D.—Near Polperro: *G. Couch* (auct. *Pasc.* in *Bot. Gaz.* ii. 38). C. *Narrow-leaved Bitter-Cress.*

C. sylvatica (Link).—*C. hirsuta*, E.B. 492. *C. flexuosa* With.—Woody places. Burleigh and Mutley, near Plymouth. Shaugh!: *Balkw.* Exeter; Torquay: *Rav.* D.—Near Cawsand; between Saltash and Antony passage. C.

C. hirsuta (L.) Common in damp places. D. and C.! *Hairy Bitter-Cress.*

C. pratensis (L.)—*E.B.* 776. — Moist meadows, plentiful about Plymouth!; Radford, Plymstock *(flore pleno)*, 1846. Near Plympton St. Mary church *(fl. plen.)*: Briggs. Near Sidmouth; near Exeter *(fl. plen.)*: Rav. D.—Near Millbrook. Falmouth: *Polytech.* 1856. Common: *Pasc.* in *Bot. Gaz.* ii. 38. C. *Lady's Smock.*

C. amara (L.)—*E.B.* 1000.—Moist meadows near streams, rare. Trewhiddle: *Pasc.* in MS. Catalogue (*auct.* Wats.) C. *Common Bitter-Cress.*

Hesperis *Linn.* Dame's Violet.

† *H. matronalis* (L.)—*H. inodora*, E.B. 731.—Hilly pastures, very rare. Near Bideford: *Maw* in *Phytol.* 1853, p. 791. D.

Sisymbrium *Linn.* Hedge Mustard.

S. officinale (Scop.)—*E.B.* 735.—Common about Plymouth. "A var. with pale sulphur-yellow flowers," near Cowley bridge, Exeter: *Rav.* D.—Antony passage; Saltash. Falmouth: *Polytech.* 1856. C. *Hedge Mustard.*

S. Irio (L.)—*E.B.*1631.—Near old towns, rare. Devon (o): *Cyb. Brit.* Sup. i. D. *London Rocket.*

Mr. H. C. Watson writes me that he is unable to find the reference for this, but has an impression that some botanist reported it as a casual appearance at Plymouth.

S. Sophia (L.)—*E.B.* 963.—Waste places, not common. Near Denham bridge: *W. D. & C. Fl.* Teignmouth; Ilfracombe, &c.: *Rav.* D.—I have no reference to localities in the sister county; but am informed by Mr. H. C. Watson, on the authority of Jones's *Tour in Cornwall and Devon* (p. 21), that it occurs there. C. *Flixweed.*

S. thalianum (Gaud.)—Arabis *Sm.*, E.B. 901.—On walls and banks. Frequent about Plymouth!, *e.g.* Lipson, Efford lane, Ham. Sidmouth: *Fl. Sid.* Exeter; Ilfracombe: *Rav.* Between Hampstead and Littlehampton: *Fl. Tot.* Sup. D.—Cawsand. Near Millbrook: *W. D. & C. Fl.* Bodmin: *J. Ward* (auct. *Pasc.* in *Bot. Gaz.* ii. 38). C. *Common Thale-Cress.*

Alliaria *Adans.* Sauce-alone.

A. officinalis (Andrzj.)—*E.B.*796. *Sisymbrium Alliaria* Sm., Koch.—Hedge banks. Plentiful about Plymouth. D!.—Cawsand; St. Stephens by Saltash; Calstock. C. *Jack-by-the-Hedge.*

Erysimum *Linn.* Worm-seed.

E. cheiranthoïdes (L.)—*E.B.* 942.—Cultivated ground, rare. About Dartmoor; between Buckland Monachorum and Roborough down: *Briggs* (1861). Newton: *Rav.* Paignton: *Fl. Tot.* Near Totnes; Teignmouth; Moreton; N. Bovey: *Fl. Dev.* D.

[*E. orientale* (R. Br.)—*E.B.* 1804.—Fields. Introduced. The Rev. W. S. Hore, in a paper read at the meeting of the British Association held at Plymouth, August, 1841, stated, on the authority of the Rev. J. Tozer, that this plant "came up spontaneously in a field that had been ploughed to form a garden, in the centre of the new square at Plymouth." D.]

Brassica *Linn.*

B. oleracea (L.)—*E.B.* 637. — Cliffs by the sea. King's cove; Salcombe and Branscombe: *Fl. Sid.* Near Torquay: *Ward* in *Phytol.* 1842, p. 20. Babbicombe: *Jord.* in *Phytol.* 1843, p. 828. Braunton: *Rav.* D.—Penzance: *Johns* (H.S. Herb.). Mainporth: *Cocks* (Polytech. 1856). C. *Wild Cabbage.*

‡ *B. campestris* (L.)—*E.B.* 2234.—Borders of fields and banks of rivers. Frequent about Plymouth. Near Bideford: *Maw* in *Phytol.* 1853, p. 791. N. Bovey; Moreton: *Fl. Dev.* Near Ide: *Rav.* D.—Beach near St. Mawes: *Miss W.* (H. S. Herb.) Common, "subject to the usual doubts:" *Pasc.* in *Bot. Gaz.* ii. 38. C. *Wild Navew.*

—— *β. B. Rapa* (L.)—*E. B.* 2176. — In similar situations. Warberry hill, Torquay: *Rav* D.—Falmouth, "not truly wild:" *Polytech.* 1856. C. *Turnip.*

[*B. Napus* (L.)—*E.B.* 2146.—Borders of fields. St. Mary Church: *Rav.* Near Westleigh: *Maw* in *Phytol.* 1853, p. 791. Moreton; Ilsington: *Fl. Dev.* D.—Falmouth: *Polytech.* 1856. Common, "subject to the usual doubts:" *Pasc.* in *Bot. Gaz.* ii. 38. C. *Rape, or Coleseed.*]

Sinapis *Linn.* Mustard.

S. nigra (L.)—*E.B.* 969.—Common about Plymouth!; Tavistock. D.—Near Saltash; Looe. Falmouth: *Polytech.* 1856. C. *Black Mustard.*

S. arvensis (L.)—*E.B.* 1748.—Corn-fields, common. D.! and C. *Charlock.*

† *S. alba* (L.)—*E.B.* 1677. — Cultivated and waste calcareous land. "Tillage fields, common:" (?) *Rav.* Cultivated land, about Ilfracombe: *Briggs.* "Fields and banks, frequent:" *W.D. & C. Fl.* I do not remember collecting it about Plymouth. D.—Falmouth: *Polytech.* 1856. C. *White Mustard.*

Diplotaxis *Cand.* Wall-Mustard.

D. tenuifolia (DC.)—*E.B.* 525. *Sinapis* Sm.—Old walls, rubbish, and rocks: not common. Catdown quarries!. Exeter: *Rav.* D.—New Bridge: *W. D. & C. Fl.* Near Launceston: *Johns* (H. S. Herb.) C. *Fine-leaved Mustard.*

D. muralis (DC.)—*E.B.* 1090. *Sinapis* Sm.—Waste ground. Catdown quarries!; Mutley. I have not seen it in the latter locality for several years. D.—"On the causeway at Hayle:" *Benn.* in *Phytol.* 1851, p. 2. Swanpool and Mainporth, &c.: *Polytech.* 1856. C. *Sand-Mustard.*

Alyssum *Linn.*

‡ *A. calycinum* (L.)—*E.B.S.* 2853.—Near Dawlish: *Jord.* in *Phytol.* 1845, p. 338. D.

Koniga *Adans., R. Br.*

[* *K. maritima* (R. Br.)—*E.B.* 1729. *Alyssum* Sm.—Naturalized near the sea. Devil's point, Stonehouse, plentiful; Hoe, Plymouth, sparingly; Bovisand. Exmouth, "hardly wild:" *Jord.* in *Phytol.* 1843, p. 828. Budleigh Salterton; Exmouth sands: *Rav.* D.—Beach, Kiln quay, Mylor: *Miss W.* (H. S. Herb.) Scilly islands, one specimen: *Towns.* in *Journ. Bot.* ii. 107. C.]

Draba *Linn.* Whitlow-grass.

D. muralis (L.)—*E.B.* 912.—Walls. Carclew, near Falmouth: *Miss W.* (H. S. Herb.) C.

Mr. H. C. Watson admits it into his list for Cornwall, but thinks the authority unsatisfactory.

D. verna (L.)—*E. B.* 586.—Very common on walls and banks. Plentiful about Plymouth; on the bridge at Weston mills; Longbridge, on the Plym; Mount Batten. D.—Torpoint. "Common on the coast:" *Pasc.* in *Bot. Gaz.* ii. 38. Collected at Penryn by W. P. Cocks, but the habitat is now said to be destroyed: *Polytech.* 1856. C. *Common Whitlow-grass.*

Cochlearia *Linn.* Scurvy-grass.

C. officinalis (L.)—*E.B.* 551.—Sea-coast, mostly in muddy and stony places. Between Teignmouth and Dawlish, near Torquay: *W.D. & C.Fl.* "The Hoe, Plymouth" (?); Topsham marshes: *Fl.Dev.* Bideford; Ilfracombe; near Lifton: *Rav.* Banks of the Teign: *Jord.* in *Phytol.* 1843, p. 828. D.—Boscastle; near Lostwithiel!. Near Calstock: *W. D. & C. Fl.* Pendennis and Penzance: *Polytech.* 1856. C. *Common Scurvy-grass.*

C. danica (L.)—*E.B.* 696.—Old walls and hedges, abundant about Plymouth!, extending from the sea-coast to about a mile inland. Beach, Teignmouth: *Jord.* in *Phytol.* 1843, p. 828. Anstice cove: *Lees* in *Phytol.* 1851, p. 240. Northam, N.D.: *Maw* in *Phytol.* 1853, p. 791. D.—Between Torpoint and St. John's; Penlee point; near Polperro. Newlyn cliff, and on walls in Penzance: *Curn.* in *Phytol.* 1844, p. 1143. Falmouth: *Polytech.* 1856. C. *Danish Scurvy-grass.*

C. anglica (L.)—*E.B.* 552.—On the muddy sea-shore, and about the mouths of large rivers. Keyham, near Devonport. Near Maristow: *W.D. & C. Fl.* Banks of the Torridge, near Bideford: *Maw* in *Phytol.* 1853, p. 787. Topsham marshes: *Fl. Dev.* D.—St. Michael's mount. River-wall, at Wadebridge: *Pasc.* in *Bot. Gaz.* ii. 38. C. *English Scurvy-grass.*

Armoracia *Rupp.*

[*A. rusticana* (Rupp.)—*Cochlearia Armoracia* (L.) *E.B.* 2323.—Waste ground, not native to Britain. Field at the back of Lipson mill, Plymouth; between Leigham and Plym-bridge. Dawlish: *Jord.* in *Phytol.* 1843, p. 828. Ditches between Alphington and Topsham; ditches of Plympton and Totnes castles: *Fl. Dev.* Ilfracombe: *Rav.* D.—Falmouth, "outcast from gardens:" *Polytech.* 1856. C. *Horse Radish.*]

A. amphibia (Koch). — *Sisymbrium amphibium* (L.) *E. B.* 1840. *Nasturtium amphibium* (Br.) — Watery places. River Exe, near Wear; *Fl. Dev.* D. *Amphibious Nasturtium.*

Camelina *Crantz.* Gold-of-pleasure.

[*C. sativa* (Fr.). Barley field, Fursdon, Egg-buckland: *Briggs* in *Phytol.* n.s. iv. 383. D.]

Thlaspi *Linn.* Penny Cress.

T. arvense (L.)—*E.B.* 1659.—Fields and roadsides. Banks of r. Teign, near Sandypark!. Cultivated ground near St. Budeaux; Moretonhampstead: *Briggs.* South Tawton!: *Hore.* Dawlish; Chudleigh; Exeter: *Rav.* Near Weston mills (I have not met with it there); frequent about North Bovey, Ilsington, &c.: *W. D. & C. Fl.* D.—St. Stephens, near Saltash: *Hore.* Scilly islands: *Towns.* in *Journ. Bot.* ii. 107. C. *Penny Cress.*

T. alpestre (L.)—*E.B.* 81.—Ilsington: *Fl. Dev.* When we read that this plant inhabits mountain pastures (*vide* Bab. Man. ed. 5, p. 32), we doubt its appearance in our district. The "o" stands against it in *Cyb. Brit.* Sup. i. D. *Alpine Penny Cress.*

Teesdalia *R. Br.*

T. nudicaulis (R. Br.)—*E.B.* 327.—Sandy and gravelly places. Near Shaugh bridge; lane leading up to Sheepstor from the village; on rocks, left bank of r. Teign, above Fingal bridge. Near Meavy: *Briggs.* Haldon: *Jord.* in *Phytol.* 1843, p. 828. Lympstone; Moreton; Widdecombe: *Fl. Dev.* Exmouth warren; Lustleigh cleave: *Rav.* D.—Maker; Rame!. Near Helston: *W. D. & C. Fl.* Bologas, near Penzance: *Curn.* in *Phytol.* 1844, p. 1144. Wendron: *Miss W.* (H. S. Herb.) C.

Lepidium *Linn.* Pepper-wort.

[* *L. Draba* (L.)—*E.B.S.* 2683.—Introduced. "Six or seven plants in a waste spot by the river Walkham, a little above the factory at Horrabridge (May 9th, 1865) :" *Briggs* in *Journ. Bot.* iii. 349. D. *Whitlow Pepper-wort.*]

L. campestre (R. Br.)—*E.B.* 1385.—Dry gravelly soil, common. Efford lane, and elsewhere about Plymouth ; Tamerton. Banks of the Sid : *Fl. Sid.* Torquay ; near Ilfracombe : *Rav.* D. — Near Saltash. Falmouth : *Polytech.* 1856. C. *Common Mithridate Pepper-wort.*

L. Smithii (Hook.)—*L. hirtum* Sm., *E.B.* 1803.—Hedge-banks. Near King's Tamerton ; Tavistock. Near Harpford, S.D. : *Atw.* in *Phytol.* 1853, p. 1097. Exeter ; Dartmoor ; Torquay ; Ilfracombe : *Rav.* D. — Near St. Germans ; between Torpoint and Antony ; near Saltash. Penzance : *Gibs.* in *Phytol.* 1846, p. 678. Falmouth : *Polytech.* 1856. C. *Smooth Field Pepper-wort.*

L. ruderale (L.)—*E.B.* 1595.—Waste places near the sea, rare. Near Exeter ; Mortehoe : *Rav.* D. — Near Vivian's quay, Flushing : *Miss W.* (H. S. Herb.) C. Recognised as Devonian and Cornubian in *Cyb. Brit.* : vide Sup. i. *Narrow-leaved Pepper-wort.*

L. latifolium (L.)—*E.B.* 182.—Wet places near the sea and salt marshes, rare. " By the side of the river near Catdown quarries " [Plymouth], " probably brought in ballast : " *W.D. & C.Fl.* I have never seen or heard of specimens taken from this locality in late years. D. *Dittander.*

Capsella *Vent.* Shepherd's Purse.

C. Bursa-pastoris (DC.) — *Thlaspi* Sm., *E.B.* 1485.— A common weed. D. ! and C.

Senebiera *Pers.* Wart-cress.

S. Coronopus (Poiret).—*E.B.* 1660.—Waste ground. Common about Plymouth, particularly near the sea. D. — Falmouth, " rather rare : " *Polytech.* 1856. Scilly islands : *Towns.* in *Journ. Bot.* ii. 107. C. *Swine's-cress.*

S. didyma (Pers.) — *E.B.* 248. — Waste ground near the sea. Common about Plymouth; Bovisand. Brixham!: *Balkw.* Paignton: *Briggs.* Newton Poppleford, near Sidmouth: *Atw.* in *Phytol.* 1853, p. 1097. Between Bideford and Northam: *Maw.* in *Phytol.* 1853, p. 791. Torquay; Starcross, &c.: *Rav.* D. — In the streets, Torpoint; Calstock; Antony passage; near Lostwithiel. Near Landewednock and about Penryn: *E. T. Bennett* in *Phytol.* 1851, p. 3. Falmouth: *Polytech.* 1856. Scilly islands: *Towns.* in *Journ. Bot.* ii. 107. C. *Lesser Wart-cress.*

Isatis *Linn.* Woad.

‡ *I. tinctoria* (L.)—*E.B.* 97.—Waste land, rare. Langstone point: *Rav.* D. — Not recognised in *Cyb. Brit.* as occurring in D. or C.

Cakile *Gaert.* Sea-Rocket.

C. maritima (Scop.)—*E.B.* 231.—Sandy sea-shores. Teignmouth; Sidmouth; Braunton: *Rav.* Goodrington; Paignton: *Fl.Tot.* D.—Tregantle sands!, Whitsand bay. Near Marazion: *Gibs.* in *Phytol.* 1846, p. 677. Gwyllyn-vase, &c.: *Polytech.* 1856. Gunwalloe: *W. D. & C. Fl.* C. *Purple Sea-Rocket.*

Crambe *Linn.* Sea-kale.

C. maritima (L.) — *E.B.* 924. — Sandy sea-shores. Sidmouth; Dawlish; Teignmouth; Starcross; Slapton sands; Braunton burrows: *Rav.* D.—Beach, near Mevagissey: *Mr. Lobb* (H.S.Herb.) Mainporth: *W. P. Cocks.* Mr. F. P. Pascoe states, in an article in *Bot. Gaz.* ii. 38, that he has seen dried specimens of this plant from three localities in Cornwall. C.

Raphanus *Linn.* Radish.

† *R. Raphanistrum* (L.)—*E.B.* 856.—Corn-fields and elsewhere, occasionally. Catdown quarries!, Plymouth (1854): *Miss H.* "As a weed in cultivated land, near Fancy" [Plymouth]: *Briggs.* Stoke

hill, near Exeter : *Rav.* D.—Falmouth, "not common:" *Polytech.* 1856. It is found in Mr. F. P. Pascoe's list of "Cornish plants not included in *Cybele Britannica,*" printed in *Bot. Gaz.* ii., with a *quære* "Common?" attached to it. C. *Jointed Charlock.*

R. maritimus (Sm.)—*E.B.* 1643.—Sea-coasts in S. and W. of England, rare. Ravenshaw includes it in his *List of Flowering Plants of Devon,* but gives no localities. Its actual occurrence, however, in this county is confirmed in *Cyb. Brit.* Sup. i. D. — Par sands, Whitsand bay [Plymouth]; "common in the Lizard district:" *Pasc.* in *Phytol.* 1847, p. 942. Falmouth, "rare:" *Polytech.* 1856. Scilly islands, "frequent:" *Towns.* in *Journ. Bot.* ii. 107. C. *Sea Radish.*

Order VII. RESEDACEÆ.

Reseda *Linn.* Mignonette.

R. lutea (L.)—*E.B.* 321.—Waste chalky and limestone places. Catdown quarries!, introduced with ballast. Banks under the Western Hoe, Plymouth. I have no reference to the authority for the last-named habitat, now destroyed; but I think it is Mr. George Bartlett. Sand-hills of Braunton burrows : *Maw* in *Phytol.* 1853, p. 787. Dunscombe and Branscombe : *Fl. Sid.* D. *Base Rocket. Wild Mignonette.*

‡ *R. suffruticulosa* (L.)—*E.B.S.* 2628.—Waste sandy places near the sea, rare. Hooe, near Plymouth : *G. Bartlett* (1844). Not found there since. "By the South Devon Railway, at Plymouth (July, 1863), but of course not a native, and probably derived from some garden in the neighbourhood;" "on a wall at Stoke Damerel:" *Briggs* MS. D.—Penzance : *Hore* in *Phytol.* 1842, p. 162. Helston downs : *Johns* (H.S.Herb.) Scilly islands, "doubtless an escape:" *Towns.* in *Journ. Bot.* ii. 107. C. Not recorded for either D. or C. in *Cyb. Brit.*

The variety known as *R. alba* (L.) has established itself in a hedge on Marazion-green, Cornwall: *B.H.P.*

R. Luteola (L.)—*E.B.* 320.—Waste places, particularly on limestone. Lower Mount Gold, and other places about Plymouth, plentiful. Ivybridge!: *Miss H.* Northam, N.D.: *Maw* in *Phytol.* 1853, p. 791. Topsham; Teignbridge; Chudleigh: *Fl.Dev.* Ilfracombe; Saunton; Meadfoot, near Torquay; West Leigh, Tiverton: *Rav.* D.—Near Torpoint. Falmouth: *Polytech.* 1856. C. *Weld.*

Order VIII. CISTACEÆ.

Helianthemum *Gaert.* Rock-rose.

H. canum (Dun.)—*Cistus marifolius* Sm., *E.B.* 396.—On limestone rocks, rare. "Near the Land's-end:" *Mr. T. Westcombe* (auct. *Pasc.* in *Bot. Gaz.* ii. 38). C. *Hoary dwarf Rock-rose.*

Mr. Pascoe adds, touching this plant, that "not being aware that this was an addition to our flora, Mr. Westcombe omitted to take a specimen, and thus to a certain extent rendering it doubtful how far something else may not have been taken for it (some stunted form of *Salix fusca*, for instance, if not in flower)."

It is admitted into *Cyb. Brit.* Sup. i., with the questionable "o."

H. vulgare (Gaert.)—*Cistus Helianthemum* (L.) *E. B.* 1321.—Branscombe cliffs, near Seaton; Kingskerswell; Bradley woods: *Rav.* Fields near Ipplepen and Denbury down: *Fl. Tot.* Sup. D. *Common Rock-rose.*

H. polifolium (Pers.)—*E. B.* 1322. *H. apenninum* DC.—Very rare, as a British plant. We may therefore congratulate ourselves on its numerous habitats in Devon. Torquay!: *Hore.* Berry head; Anstis cove: *Rav.* Landslip at Axmouth: *Fl. Sid.* Babbicombe cliffs: *Jord.* in *Phytol.* 1843, p. 827. Near Newton Abbott: *Fl. Tot.* D. *White Mountain Rock-rose.*

Order IX. VIOLACEÆ.

Viola *Linn.* Violet.

V. palustris (L.) – *E. B.* 444.— Bogs and wet places in hilly districts. Manadon wood!, near Plymouth; Bickleigh bridge; Shaugh; near Virtuous Lady mine; Ivybridge; Dartmoor; Tavistock. Banks of the Teign, near Drewsteignton: *Parf.* Marshes on Haldon: *Jord.* in *Phytol.* 1843, p. 827. Bog at Bickwell.: *Fl. Sid.* Woodbury hill; Bovey Heathfield, &c.: *Fl. Dev.* D. — Between St. Neot and Dosmare pool; borders of Dosmare pool. Near Linkinhorne; Bodmin; Penzance: *W.D. & C.Fl.* Tregoniggy, &c.: *Polytech.* 1856. C. *Marsh Violet.*

I found a white-flowered variety between Longbridge and Plym-bridge in May, 1852.

V. odorata (L.)—*E.B.* 619.—Near Pontey's Nursery, Tavistock road, near Plymouth; on the walls of the grounds belonging to Lipson house, Plymouth; Compton; Laira embankment; and elsewhere about Plymouth. Brixham!: *Balkw.* Near Teignmouth: *Jord.* in *Phytol.* 1853, p. 827. Near Northam: *Maw* in *Phytol.* 1853, p. 791. D. — Lower Hempacombe, Maker; Nottar bridge. Grove, Millbrook: *Johns* (H. S. Herb.) Near Ashfield: *Polytech.* 1856. C. *Sweet Violet.*

The white-flowered variety occurs about Plymouth at Weston mills, Manadon hill!, between St. Budeaux and Tamerton, and at Saltram. Mr. Briggs (MS.) finds it commoner than the purple one, "in the districts lying between the Plymouth and Yealmpton road, and the Plymouth and Ivybridge road." In North Devon it is found at Northam: *Maw* in *Phytol.* 1853, p. 791. D. — I have also gathered it sparingly at Trevol, near Torpoint. C.

Another form, known as *V. imberbis* Leight., is said by Ravenshaw to be "not unfrequent" in Devon.

Mr. G. S. Gibson says that *Viola odorata* is "never found wild" at Penzance: *vide* Phytol. 1846, p. 680.

V. permixta (Jordan). On limestone, in the neighbourhood of Plympton Maurice: *Briggs.* D.

Notices of the discovery of this plant (a form intermediate between *hirta* and *odorata*) and of its identification by M. Jordan with his own *V. permixta* have appeared in the Curators' Reports of the Thirsk Botanical Exchange Club for 1864 and 1865: *vide* Journ. Bot. ii. and iii.

The subjoined complete description of it, side by side with one of the ordinary *V. odorata*, is taken from the Curators' Report for 1865 already referred to:—

V. permixta.	*V. odorata.*
Rootstock woody, scaly, wide-creeping, sending out stolons, which bear tufts of leaves and flowers, and occasionally take root.	Rootstock woody, scaly, wide-creeping, sending out long-rooting stolons, which bear tufts of leaves and flowers.
Petioles covered throughout with short stiff deflexed hairs at the flowering time, some of them 4 or 5 inches long, which is longer than the peduncles.	Petioles 1-2 inches long at the flowering time, some rather densely hairy with deflexed hairs, some nearly hairless, or the hairs so short as to be quite inconspicuous.
Leaves hairy all over on both sides, measuring at the flowering time about 1½ inch long, including the lobes, by 1¾ broad, expanding in autumn to 4 inches by 2½, so much cordate that there is only a narrow sinus left between the lobes, which are ¼ inch deep.	Leaves rather less hairy on both sides than on the other, measuring at the flowering time from 1-1½ inch both ways, including the lobes, much larger in autumn, less pointed than in the other, and the lobes shorter (not more than ⅛ inch long), and diverging more.
Stipules lanceolate, the ciliations few and very short.	Stipules similar in shape, but the ciliations closer and more numerous.
Peduncles weak, slender, 2-4 inches long when the plant is in flower, the lower part hairy, the upper with only a few scattered hairs; the bracts linear and slightly gland-ciliated, placed usually below the middle of the peduncle.	Peduncles only about 2 inches long, not so hairy as in the other; bracts not gland-ciliated, placed generally above the middle of the peduncle.
Sepals oblong, blunt, faintly ciliated along the lower third of the edge; petals slaty-blue, the upper pair imbricated, ⅜ inch wide, the lateral pair rather narrower, the lowest one ⅜ inch across, distinctly emarginate at the apex, narrowed more gradually than in the other, and with fewer veins; the spur ⅜ inch from its extremity to the tip of the lower petal; the anther-spur blunt, curved upwards, four to six times as long as broad.	Sepals oblong, blunt, sometimes the edge, sometimes the appendage only, faintly ciliated; petals white or deep purplish-blue, the upper pair ¼ inch across, and hardly if at all imbricated, the lateral pair about as broad, the lowest one ⅜ inch across, distinctly emarginate at the apex; the spur keeled, and shorter and thicker than in the other; the anther-spur curved, blunt, three to four times as long as broad.
Inodorous, or faintly scented.	Odorous.

Apropos of this *V. permixta* it may not be uninteresting to remark that, in May, 1859, I found on the slopes below the Citadel, at Plymouth, a violet which struck me as being curious, from its resembling in some respects *V. hirta* and in others *V. odorata.* I sent a specimen to Prof. Babington, who at first thought it might be something uncommon; but, after further correspondence, he fell in with my view that it was only a starved form of *V. hirta.*

V. hirta (L.)—*E. B.* 894.—Hedges and banks on limestone. Saltram; under the Citadel, Plymouth; Mount Batten; Puslinch; on limestone rubble heaps near Laira bridge, Plymstock side; Colwell. Laira!: *Balkw.* Widey; Egg-buckland: *Briggs.* Near Teignmouth: *Jord.* in *Phytol.* 1843, p. 827. Between Instow and Bideford: *Maw* in *Phytol.* 1853, p. 791. Ilsington; Chudleigh: *Fl. Dev.* Hillsborough, near Ilfracombe: *N.D.H.* Near Berry Narbor: *Rav.* D.—Trevol, near Torpoint; Penlee point, where also a white-flowered variety grows; St. Germans. Pennance, &c. "rather rare:" *Polytech.* 1856. C. *Hairy Violet.*

V. sylvatica (Fries).–*E. B.* 620.—Common on hedge-banks or in thickets. D.! and C. *Wood Violet.*

Under this species are comprehended two forms, which Prof. Babington says (*Manual* ed. 5, p. 38) are probably "distinct species," viz. *a. V. Reichenbachiana* (Bor.), and *β. V. Riviniana* (R.) They are both found in Devon and Cornwall, the latter more abundantly. *V. flavicornis* (Forst.), *E.B.S.* 2736, is a dwarf form having small leaves and large flowers, which I think I found near Shaugh-bridge in 1860; and it is mentioned in Ravenshaw's list as occurring at Rackenford.

V. canina (L.)—*V. pumila* H. and A. (not *Vill.*)—Sandy and peaty places. Bickleigh down. Forde bog, near Newton Bushell; Milber down; Clyst St. George: *Rav.* D.!—It occurs in Cornwall: *Polytech.* 1856. C.—*V. flavicornis* (Sm.) is a small form with cordate leaves, which I have no authority for stating as having been found in either county. *Dog Violet.*

—— *β. V. lancifolia* (Thore).—*V. lactea* Sm. *E.B.* 445.—Bickleigh down; Cann wood; near Wheal Boringdon mine, Plympton!; near Axter lodge, Roborough; Roborough down. Buckland down!: *Hore.* Bovey Heathfield; Rora down; Rackenford: *Fl. Dev.* Near Shaugh; abundant in a lane to the left of the road leading from the top of Castle-farm hill to Plym-bridge: *W. D. & C. Fl.* D.—Near Helston; Scilly islands: *W.D.& C.Fl.* Pennance, Nangitha, &c.: *Polytech.* 1856. C.

V. stagnina (Kit.) Furzecroft, Mylor hill, Flushing: *Miss W.* But Mr. H. C. Watson says, in a letter to me, that it is doubtful whether this plant or *V. lusitanica* (which is equivalent to *V. lactea* Sm. excluding *V. stagnina)* is meant. C.

V. lutea (Huds.)—*E.B.* 721.—Mr. T. B. Flower has seen this plant somewhere in Devon, but reference to locality is wanting: *Wats.* in litt. Land's-end: *Hore* in *Phytol.* 1842, p. 163. C. *Yellow Mountain Violet* or *Yellow Pansy.*

A specimen of this plant, collected by the Rev. W. S. Hore, is in the herbarium of the Plymouth Institution, but the locality is not given. Probably it is from the above-named habitat.

—— *β. V. Curtisii* (Forst.)—*E.B.S.* 2693.—Braunton and Instow burrows, with yellow flowers: *Maw* in *Phytol.* 1853, p. 787; and *Briggs* (Aug. 1863). D.

V. tricolor (L.)—*E.B.* 1287.—Common. A large-flowered form with all the petals purple grows in Egg-buckland. D.—Torpoint!; Whitsand bay. Falmouth: *Polytech.* 1856. C. *Heartsease. Pansy.*

—— *β. V. arvensis* (Murr.)—*E.B.S.* 2712.—Egg-buckland; Plymstock. D.—Near Torpoint. Tregantle!: *Balkw.* C.

Order X. DROSERACEÆ

Drosera *Linn.* Sundew.

D. rotundifolia (L.)—*E.B.* 867.—Common in boggy places. Dewer-stone, Shaugh!; Ivybridge; Roborough down; Tavistock. Dartmoor!: *Jac.* Haldon, &c.: *Fl.Dev.* Frogmore, near Ilfracombe; *N.D.H.* Bovey Heathfield; Chagford; Holne-chase; bogs near Martinhoe: *Rav.* D.—Marsh near Gulval: *Gibs.* in *Phytol.* 1846, p. 678. Budock bottoms, &c.: *Polytech.* 1856. C. *Round-leaved Sundew.*

D. intermedia (Hayn.)—*D. longifolia* Sm. *E.B.* 868.—In boggy places. Tolchmoor: *Bank.* Bovey Heathfield; Budleigh Salterton: *Rav.* Near Clovelly: *N.D.H.* Salcombe and Peak hills:

Fl. Sid. D. — Marsh near Gulval: *Gibs.* in *Phytol.* 1846, p. 678. Budock bottoms, &c.: *Polytech.* 1856. C. *Spathulate-leaved Sundew.*

—— *β. caulescens.* Tolchmoor: *M. W. Hind* in *Phytol.* n.s. ii. 117. D.

D. anglica (Huds.)—*E.B.* 869.—In bogs, rare. Peak hill, near Sidmouth; Salcombe hill: *Rav.* D.—It occurs in Cornwall: *vide* Jones's Tour. C. *Great Sundew.*

Order XI. POLYGALACEÆ.

Polygala *Linn.* Milkwort.

P. vulgaris (L.)—*E.B.* 76.—Dry pastures and peaty places. Common. Saltram embankment; Bickleigh; Tavistock. Staddon heights!: *Jac.* D.—Liskeard; Penlee point; between Torpoint and St. John's; between Talland and Polperro. Falmouth: *Polytech.* 1856. C.

P. oxyptera (R.), which is a form of *P. vulgaris* with smaller flowers and fruit broader than the wings, is found at Salcombe and Forde bog, Devon: *Rav.*

P. calcarea (F. Sch.) — *P. amara* Don, *E. B. S.* 2764. — Scilly islands, " one specimen:" *Towns.* in *Journ. Bot.* ii. 107. C.

Order XII. FRANKENIACEÆ.

Frankenia *Linn.* Sea-heath.

F. lævis (L.) — *E.B.* 205. — " On an old wall at the Mount [St. Michael's], certainly planted:" *Pasc.* in *Bot. Gaz.* ii. 38. C.

Order XIII. ELATINACEÆ.

Elatine *Linn.* Water-wort.

E. hexandra (DC.)—*E. Hydropiper,* E.B. 955.—Looe pool!: *Jac.,* and *Gibs.* in *Phytol.* 1846, p. 681. Near Helston: *Johns* (H.S.Herb.) Scilly islands: *Towns.* in *Journ. Bot.* ii. 108. C.

Order XIV. CARYOPHYLLACEÆ.

Dianthus *Linn.* Pink.

D. prolifer (L.)—*E.B.*956.—Sandy and gravelly places, very rare. Bishop's Teignton : *Rav.* D. *Proliferous Pink.*

D. Armeria (L.)—*E.B.* 317.—Waste places, rare. Near Teignmouth!: *Hore.* Near Newton ; Sandtown rocks ; Bovey Tracey : *Fl. Dev.* Ilsham ; Upton Lanes ; rocks at Blackhead : *Rav.* Haldon : *Jord.* in *Phytol.* 1843, p. 827. Between Bideford and Abbotsham, " in abundance, for half a mile :" *vide* communication from *Mr. G. Maw* to *Phytol.* 1853, p. 1028. Hedge in Exeter road beyond Gatcombe : *Fl. Tot.* D. — Roadside near Boslowick *(Mr. Brown) :* Polytech. 1856. C. *Deptford Pink.*

D. deltoïdes (L.)—*E.B.*61.—Hilly pastures, rare. Road-side east from the Teign, Teignmouth : *N.B.G.* D. *Maiden Pink.*

Saponaria *Linn.* Soapwort.

S. officinalis (L.)—*E.B.* 1060. — Hedges near villages, but probably introduced. Laira embankment, right side of the Plym; Crabtree ; left bank of the Plym, near Longbridge ; Shaugh. Near Dawlish : *Jord.* in *Phytol.* 1843, p. 827. Instow burrows ; *fl. pleno* near the light-house, Braunton burrows : *Maw* in *Phytol.* 1853, p. 787. Between King's Teignton and Sandy Gate, &c. : *Fl. Dev.* Branscombe : *Fl. Sid.* Banks of the Teign at Teignbridge ; near Ilfracombe : *Rav.* D.—Near St. Just. Egloshayle : *Rev. T. S. Carlyon* (H.S.Herb.) Tresco, Scilly islands : *Towns.* in *Journ. Bot.* ii. 108. C.

—— *β. hybrida* (L.) Near Bishop's Teignton : *Rav.*

Silene *Linn.* Catchfly.

S. anglica (L.)—*E.B.*1178.—Sandy and gravelly fields. Banks of the Erme : *Bank.* North Bovey ; Lustleigh ; King's Teignton ; Dawlish ; Teigngrace : *Fl. Dev.* Shaugh, and elsewhere in cultivated ground on the borders of Dartmoor; field near Maristow house: *Briggs.* Hempston: *Fl. Tot.* D.—Near Mullion!: *Jac.* Helston: *Johns* in *Phytol.* 1847, p. 726. A single plant in a cornfield between Torpoint and St. John's; Liskeard; near St. Cleer: *Briggs.* Falmouth: *Polytech.* 1856. Scilly islands: *Towns.* in *Journ. Bot.* ii 108. C. *English Catchfly.*

—— *β. S. quinquevulnera* (L.)—*E.B.*86.—Lundy island; between Ilfracombe and Lee: *Rav.* D.

S. nutans (L.)—*E.B.* 465.—On limestone. Dunscombe, near Sidmouth; Branscombe cliffs: *Rav.* D.—Corn-fields, Severgan, near Constantine! (July, 1866): *Balkw.* I am not aware that it has been before recorded as found in Cornwall. It was not known to Mr. H. C. Watson in 1860 as occurring there (*vide* C.B.S. i. 52.) C. *Nottingham Catchfly.*

S. inflata (Sm.)—*E.B.* 164.—Fields and roadsides. Common about Plymouth; Bickleigh. D.—Between Torpoint and Antony. Falmouth: *Polytech.* 1856. C. *Bladder Campion. White Bottle.*

S. maritima (With.)—*E.B.*957.—Near the sea. Hoe!, Plymouth; Bovisand. Teignmouth: *Jord.* in *Phytol.* 1843, p. 827. Anstice cove: *E. Lees* in *Phytol.* 1851, p. 241. Torquay; Ilfracombe: *Rav.* D.—Whitsand bay. Penzance: *Gibs.* in *Phytol.* 1846, p. 677. Falmouth; Pendennis, &c.: *Polytech.* 1856. C. *Sea Campion* or *Catchfly.*

[*S. Armeria* (L.)—*E.B.* 1398.—Near Stover: *Rav.* Near Teignmouth; Trusham; Sandtown rocks: *Fl. Dev.* D. *Common* or *Lobel's Catchfly.*]

S. acaulis (L.)—*E.B.*1081.—"Dartmoor: *Hudson* and *Withering.* Found in Devon by Mr. Gidley, according to Ray:" *Fl. Dev.*, but not found by the authors. D. *Cushion-Pink.*

Lychnis *Linn.* Campion.

L. Flos-cuculi (L.)—*E.B.* 573.—Moist places. Manadon wood; Saltram; near Cann quarry; Tavistock; banks of the Teign, &c.

D.!—Near Lostwithiel. Falmouth: *Polytech.* 1856. Scilly islands, "rare:" *Towns.* in *Journ. Bot.* ii. 108. C. *Ragged Robin.*

L. vespertina (Sibth.)—*L. dioica β.* (L.) *E.B.* 1580.—Fields. Catdown, and reservoir, Tavistock road, Plymouth; near Hooe, Plymstock; Bickleigh; Ivybridge!; Chagford. Start point; Torquay, &c.: *Rav.* Harper's hill, &c.: *Fl. Tot.* D.—Falmouth: *Polytech.* 1856. C. *White Campion.*

L. diurna (Sibth.) —*L. dioica α.* (L.) *E. B.* 1579.—Damp hedgebanks. Very common. D.! and C. *Red Campion.*

This and the next preceding species vary in colour from red to white and white to red, although in these counties the former is more generally found white and the latter red. I met with *L. diurna* white in Catdown quarries in 1863. It has also been found of the same colour at Falmouth: *Polytech.* 1856.

L. Githago (Lam.)— *Agrostemma* (L.) *E. B.* 741. — Corn-fields. Near Ivybridge, and elsewhere in the neighbourhood of Plymouth. Brookfield!: *Balkw.* Sidmouth: *Fl. Sid.* Borders of Dartmoor: *Rav.* Paignton, &c.: *Fl. Tot.* D.—Boscastle; Looe and Polperro. Falmouth: *Polytech.* 1856. C. *Corn Cockle.*

Sagina *Linn.* Pearlwort.

S. procumbens (L.)—*E. B.* 880.—Waste ground. Common. D.! and C.

A fleshy maritime form is *S. maritima* (Gren.). It occurs between Torpoint and St. John's, Cornwall.

S. apetala (L.)—*E.B.* 881.—Walls and dry places. South Devon place, West Hoe, and elsewhere about Plymouth; Rumple quarry. Bovisand!: *Hore.* D.—I have seen it repeatedly in Cornwall, but have noted no particular locality. Falmouth: *Polytech.* 1856. Scilly islands, "common:" *Towns.* in *Journ. Bot.* ii. 108. C.

S. ciliata (Fr.) Dry places and sandy heaths. Down Thomas: *Briggs* in *Journ. Bot.* iii. 349. D. — Bank between Saltash and Botusfleming: *id. et ib.* Scilly islands: *Towns.* in *Journ. Bot.* ii. 108. C.

S. maritima (Don).—*E.B.* 2195.— On the sea-shore. Dock-yard, Devonport: *Bank.* Wembury!: *Hore.* Clovelly: *Rav.* Mouth of the Otter: *Fl. Sid.* "Common on the coasts:" *Hore* in *Phytol.* 1842, p. 162. D.—The last-cited authority says it is also common on the coasts of Cornwall. Pendennis, &c.: *Polytech.* 1856. Scilly: *Towns.* in *Journ. Bot.* ii. 108. C. *Sea Pearlwort.*

A much-branched prostrate form is *S. debilis* (Jord.), which I found on Drake's island, Plymouth, in 1852. Mr. Townsend also collected it on the Scilly islands, Cornwall *(Journ. Bot.* ii. 108).

S. subulata (Wimm.)—*Spergula* Sm., *E. B.* 1082. — Dry gravelly and sandy places. Near Shaugh-bridge; near Roborough. Lynmouth; Haldon; Blacket tor; near Newbridge, on the Dart; Exmoor: *Fl. Dev.* "Common on Dartmoor:" *Briggs.* D. — Pasture above Whitsand bay: *id.* Near Helston!: *Hore.* Pendennis castle, Falmouth: *D. Peirson* in *Phytol.* 1842, p. 30. Falmouth: *Polytech.* 1856. C.

S. nodosa (E. Meyer)—*Spergula* Sm., *E.B.*694.—Wet and sandy places. Near Ivybridge!: *Bank.* Braunton burrows: *N.D.H.* (Mr. T. R. A. Briggs saw it there in August, 1863). Ilfracombe: *Rav.* D. — Near Penzance. Kynance: *Johns* in *Phytol.* 1847, p. 725. Mainporth: *W.P. Cocks* (Polytech. 1856). C. *Knotted Spurrey.*

Honkeneja *Ehrh.*

H. peploïdes (Ehrh.)—*Arenaria* E.B.189.—Sandy sea-coasts. Exmouth; Dawlish; Torquay; Otterton: *Fl. Sid.* Woollacombe: *Rav.* Teignmouth: *Jord.* in *Phytol.* 1843, p. 827. D.—Tregantle sands!, Whitsand bay; Wear, near Millbrook; near Marazion Swanpool and Mainporth: *Polytech.* 1856. C.

Alsine *Wahl.*

A. verna (Jacq.)—*Arenaria* Sm., *E.B.*512.—Rocky places in hilly districts. Lizard: *Hore* in *Phytol.* 1842, p. 163. Kynance: *Mr. J. Sleeman* (H.S. Herb.), and *Johns* in *Phytol.* 1847, p. 725. C.

—— *β. A. Gerardi* (R.) From Caerthillian valley to Kynance cove : *E. T. Bennett* in *Phytol.* 1851, p. 3. *Vide* also *Bab. Man.* ed. 5, p. 52. C.

As the Cornish localities cited for both the typical form of this species and its variety are identical, it is probably the latter only (the occurrence of which in Cornwall is well authenticated) that is found there.

A. tenuifolia (Wahl.) — *Arenaria* Sm., *E.B.* 219. — Sandy and chalky places, rare. " On a wall at the bottom of Holloway-street, Exeter *(Mr. Jacob):*" Fl. Dev. D. —Mr. F. P. Pascoe states, on the authority of the *Botanist's Guide* and *Jones's Tour*, that it occurs in Cornwall. He had not however himself seen the plant in that county. *Vide* Bot. Gaz. ii. 38. C.

Arenaria *Linn.* Sandwort.

A. trinervis (L.)—*E. B.* 1483. — Damp shady places. Common about Plymouth ; Burleigh ; between Meavy and Sheepstor. Shaugh ! : *Balkw.* Near Exeter ; Torquay ; Ilfracombe, &c. : *Rav.* D. — Maker ! ; near Saltash ; between Torpoint and St. John's ; near Lancellos. Trefusis woods, &c. : *Polytech.* 1856. C.

A. serpyllifolia (L.)—*E. B.* 923.—Dry places and walls. Under the Citadel, Tothill-lane, and elsewhere, Plymouth ; near Plymbridge. D. — Maker ! ; between Trematon and Antony passage ; near Saltash. Millbrook ! : *Balkw.* Falmouth, " not common :" *Polytech.* 1856. C.

Mr. Ravenshaw mentions a variety *tenuior*, " formerly on old walls at Exeter, perhaps now destroyed."

Stellaria *Linn.* Stitchwort.

S. nemorum (L.)—*E. B.* 92.—Damp woods, chiefly in the North of England. " Road between Moreton and Chudleigh, near Chudleigh bridge *(Hon. and Rev. W. Annesley) :*" Fl. Dev. pt. ii. 184. D. — Boconnoc woods : *J. Ward* (Pasc. *in* Bot. Gaz. ii. 38). C. *Wood Stitchwort.*

Mr. Hewett Cottrell Watson has admitted this plant into his list for Devon and Cornwall *(C.B.S.)*, but stigmatized thus—" o," implying that the authorities for the localities named need corroboration.

S. media (Wither.)—*E. B.* 537.—In every hedge. D. ! and C. *Common Chickweed.*

It is very variable in appearance. There are three distinct varieties described in Babington's *Manual;* and Mr. E. Parfitt has noticed a seemingly additional variety about Exeter, which is described in Ravenshaw's List.

S. Holostea (L.)—*E. B.* 511.—Woods and hedges. Common. D. ! and C. *Greater Stitchwort.*

A variety with *yellow* petals broader and half as long as the calyx, anthers very large and yellow, has been found by Mr. E. Parfitt by the side of the canal at Exeter: *Rav.* p. 12.

S. glauca (Wither.)—*E. B.* 825.—Marshy places, not common. I have found it in the neighbourhood of Plymouth, but have no particular station on my notes. Near Exmouth; Haldon; Moreton; North Bovey; Lympstone: *Fl. Dev.* D.—Cardynham: *Mrs. Grylls* (Pasc. *in* Bot. Gaz. ii. 38). Falmouth: *W. P. Cocks* (Polytech. 1856). C.

S. graminea (L.)—*E. B.* 803.—Dry heathy and bushy places. Mutley; Pennycomequick; Bickleigh; Tavistock; and elsewhere in the county. D.—Between Lancellos and Polruan, &c. Falmouth: *Polytech.* 1856. C. *Lesser Stitchwort.*

S. uliginosa (Murr.)—*E. B.* 1074.—In wet places. Near Mutley and Compton, Plymouth; Bickleigh. Near Devonport!: *Hore.* D.—Maker; between Torpoint and St. John's. Falmouth: *Polytech.* 1856. C.

Malachium *Fries.* Great Chickweed.

M. aquaticum (Fr.)—*Cerastium* Sm., *E. B.* 538.—Usually in wet places. Near Ridgway: *Miss Amezdros* (1846). Near Newton: *Jord.* in *Phytol.* 1843, p. 827. Banks of the Dart, near Totnes; meadows between Exeter and Woodbury: *Fl. Dev.* Forde bog: *Rav.* D.—Cardynham: *Mrs. T. Grylls* (H.S. Herb) C.

As to its occurrence in Cornwall, marked " o " in *C.B.S.*

Cerastium *Linn.* Mouse-ear.

C. glomeratum (Thuil.)—*C. vulgatum* Sm., *E.B.*789.—Fields and banks. Common. D.! and C.

C. triviale (Link).—*C. viscosum* Sm., *E.B.*790.—In fields. Torquay: *Towns.* (Bab. *in* A.N.H. 3*rd series,* iii. 21). Ilsham: *Rav.* D. —Scilly islands, "very common:" *Towns.* in *Journ. Bot.* ii. 108. C.

C. semidecandrum (L.)—*E.B.* 1630.—In dry places. Old walls near Tavistock; Exmouth sands; St. Mary Church; downs about North Bovey: *Rav.* Goodrington: *Han.* in *Nat.* ii. 238. Old walls, Totnes: *Fl. Tot.* Torquay: *Towns.* (Bab. *in* A.N.H. 3*rd series,* iii. 21). D.

C. pumilum (Curt.) Dry banks, on limestone principally. Torquay: *Towns.* (1858). D. — Lizard point: *Bab.* (1839). C. *Vide* article on the species by Professor Babington in *Annals of Nat. His.* 3rd series, iii. 22.

C. tetrandrum (Curt.)—*E.B.* 166.—Walls and sandy places near the sea. On a wall at Sutton road, Plymouth; Braunton burrows: *Briggs.* Torquay: *Towns.* (Bab. *in* A.N.H. 3*rd series,* iii. 21). Paignton: *Rav.* D.—Whitsand bay!: *Hore.* Marazion green: *Curn.* in *Phytol.* 1844, p. 1143. Near Mainporth, "rare:" *Polytech.* 1856. Scilly islands, "almost everywhere:" *Towns.* in *Journ. Bot.* ii. 108. C.

C. arvense (L.)—*E.B.* 93.—"Sandy places," no localities named: *Rav.* Marked "o" in *C.B.S.* D.

Mœnchia *Ehrh.*

M. erecta (Sm.)—*E.B.* 609.—Dry gravelly and sandy places. Bovisand!, near Plymouth. Salcombe hill: *Fl. Sid.* West down, near Exmouth; Haldon; Moreton; North Bovey: *Fl. Dev.* Bovey Heathfield; Hope's nose: *Rav.* D. — Near Lugger's cave, Whitsand bay!; Maker heights; Penlee point. Near the Logan rock: *Gibs.* in *Phytol.* 1846, p. 679. Pendennis, "rather rare:" *Polytech.* 1856. C.

Order XV. MALVACEÆ.

Malva *Linn.* Mallow.

M. moschata (L.)—*E.B.* 754.—Gravelly places and hedges. Saltram ; near Laira, Plymouth ; Tavistock ; Chagford. Brookfield!: *Balkw.* Lynmouth : *Clark* in *Phytol.* 1852, p. 743. D.—St. Stephens ; St. Germans ; Calstock. Near Mewdon and Helford : *Polytech.* 1856. C. *Musk Mallow.*

M. sylvestris (L.) — *E. B.* 671. — Road-sides and waste places. Common in the immediate vicinity of Plymouth, *e. g.* under the Citadel, at West Hoe, on the road to Milehouse, &c. To be met with everywhere throughout the county. D. ! —Torpoint ; near Saltash ; Calstock ; Tregantle fort. Falmouth : *Polytech.* 1856. C. *Common Mallow.*

M. rotundifolia (L.)—*E.B.* 1092.—Waste places. Catdown quarries, Plymouth (July, 1855) : *Miss H.* Plymstock : *Jul.* "Not common near Plymouth ; but I found it a few years ago near the Devil's point, Stonehouse ; near Lustleigh (Sep. 1863) ; Braunton :" *Briggs* MS. Yealmpton village : *id.* in *Phytol.* n.s. v. 369. Near Torquay ! : *Hore.* Chudleigh ; Exmouth ; N. Bovey ; Ilsington ; St. Mary Church ; Hele, near Ilfracombe : *Rav.* Under Dartington copse ; Exeter road, "frequent :" *Fl.Tot.* D. — Village near Land's-end : *Briggs* MS. Pendennis : *Polytech.*1856. Scilly islands, "common :" *Towns.* in *Journ. Bot.* ii. 108. C. *Dwarf Mallow.*

Althæa, *Linn.*

A. officinalis (L.)—*E.B.*147.—Marshes, particularly near the sea. Lophill !, near Maristow. Totnes : *Fl.Tot.* D.— St. Breock : *Ward.* Polperro : *Couch* (Pasc. *in* Bot. Gaz. ii. 39). Pendennis, "habitat destroyed :" *Cocks* (Polytech. 1856). C. *Marsh Mallow.*

Lavatera *Linn.* Tree-Mallow.

L arborea (L.)—*E.B.* 1841.—Maritime rocks, rare in Britain.

It is often found in these counties as an escape from cultivation: Bovisand, doubtfully wild. Banks of the Yealm: *Jul.* in *Nat.* iii. 117. Near Torquay: *Ward* in *Phytol.* 1842, p. 20. Teignmouth: *Jord.* in *Phytol.* 1843, p. 828. Rocks under Peak-hill: *Fl. Sid.* Orestone, Torbay; Hartland quay; Hele, near Ilfracombe: *Rav.* D.—" A true native on the cliffs between Rame-head and Tregantle:" *Briggs* in *Journ. Bot.* i. 377. Mousehole cliffs: *Curn.* in *Phytol.* 1844, p. 1143. Lamorna cliffs: *B.H.P.* Pendennis, "rare:" *Polytech.* 1856. Pentyre head, near Padstow: *Balkw.* (1864). Near the Lizard: *id.* (1866). Scilly islands, "common on the Heugh:" *Towns.* in *Journ. Bot.* ii. 108. C.

Order XVI. TILIACEÆ.

Tilia *Linn.* Lime-tree.

† *T. europæa* (L.) — *E.B.* 610. — In old plantations. Shaugh bridge,—a fine specimen by the cottage on the bridge. "Plentiful on wooded rocks at Blackhead, near St. Mary Church, where in consequence of the wind it only forms low bushes, and never flowers. Some overhang the water, and others are quite inaccessible:" *Rav.* Dartington; Sharpham; Littlehempston: *Fl.Tot.* D. — Mt. Edgcumbe!: *Balkw.* Trefusis wood: *Polytech.* 1856. C. *Common Lime,* or *Linden-tree.*

T. parvifolia (Ehrh.)—*E.B.* 1705. — In old woods. Buckland, near Ashburton: *N.B.G.* D.—I have a note that this tree grows in the park at Mt. Edgcumbe, but I cannot recal the authority. C. *Small-leaved Lime-tree.*

‡ *T. grandifolia* (Ehrh.)—*E.B.S.* 2720.—According to Babington (*Man.* ed. 5, p. 60) this tree is restricted to old and rocky woods by the Wye and Severn. It is however inserted in Mr. H. C. Bastian's *Flora of Falmouth* (Polytech. 1856) as growing near Penmere, Cornwall, but rare. I have therefore felt justified in introducing it here. *Broad-leaved downy Lime-tree.*

Order XVII. HYPERICACEÆ.

Hypericum *Linn.* St. John's Wort.

* *H. calycinum* (L.)—*E.B.* 2017.—Naturalized in bushy places. Thicket, Manadon hill,—but planted, I believe. Near Ashburton: *Jord.* in *Phytol.* 1843, p. 828. Hedge at Harpford: *Fl. Sid.* Near Upton Pynes, "probably an escape:" *Rav.* Shrubbery at Priory, &c., "not indigenous:" *Fl. Tot.* D.—"Abundant in hedges, Liskeard, St. Germans, and Cardynham:" *Mrs. T. Grylls* (H.S.Herb.) *Quære* was not *H. Androsæmum* mistaken for this? Mainporth and Pendennis: *Polytech.* 1856. C. *Large-flowered St. John's Wort.*

H. Androsæmum (L.)—Thickets and hedges. Saltram; Manadon wood!; Bickleigh and Bickleigh vale; Plympton; Blackstone; between Tamerton and Roborough down. Teignmouth: *Jord.* in *Phytol.* 1843, p. 828. Lynmouth: *Clark* ib. 1852, p. 742. Lympstone; Exeter; Tiverton; Landkey; Lynton; Hartland; Barnstaple; Ilfracombe: *Rav.* Dartington copse, &c.: *Fl. Tot.* D.—Between St. Germans and Landrake (1864); near Penzance (1864); between Lancellos and Polruan (1866); between Saltash and Trematon castle (1866). Falmouth: *Polytech.* 1856. Hedges: *Miss W.* (H.S.Herb.) C. *Tutsan.*

H. quadrangulum (L.)—*E.B.* 370.—In wet places and shady hedges. Chelson meadow, near Plymouth; Blackstone; Tavistock. Plympton!: *Mr. J. H. Richardson.* Teignmouth: *Jord.* in *Phytol.* 1843, p. 828. By the Exe, "not common:" *Rav.* Banks of r. Dart; mill leat [? Totnes]; Exeter road: *Fl. Tot.* D.—Near Lostwithiel (1866). Falmouth: *Miss W.* and *Polytech.* 1856. In the MS. list of the plants in the herbarium of the Royal Horticultural Society of Cornwall, kindly lent to me by the late Miss Elizabeth A. Warren, a "red" variety of this plant is mentioned as collected by that lady. *Quære* was this *H. undulatum* (Schousb.), that plant being remarkable for the handsome red dashes on the exterior of its petals? C. *Square-stalked St. John's Wort.*

H. undulatum (Schousb.) — In boggy places, by running water. Common-wood!, banks of the Plym: *Briggs* in *Journ. Bot.* ii. 45. Ivybridge: *id. et ib.* iii. 349. D.—I have this year (1866) gathered specimens of this beautiful plant (t. 16, *Journ.Bot.* ii.) in the Common-wood station, kindly shown to me by Mr. Briggs, the fortunate discoverer of the plant in Devon.—Near Helston: *Mr. Cunnach*, as reported by Prof. Babington in *Journ. Bot.* ii. 279. Near Launceston: *Mr. T. P. Lucas:* ib. iii. 157. "By a stream about three miles from Truro, beyond Kenwyn; very sparingly in a marsh by the coast about a mile from Falmouth; plentifully in a valley near Porthcurnow, about three miles from Land's-end; and also in a moist spot by the road-side, a little nearer the latter place:" *Briggs* in *Journ. Bot.* iv. 288. C.

The following are the specific character and synonymy of this plant, as given by Professor Babington in *Journ. Bot.* ii. 97:—

H. undulatum (Schousb.); stem erect, branched, 4-edged, herbaceous; leaves oblong, wavy at the edge, with many pellucid dots, netted with pellucid veins, and (as well as the sepals and petals) with black marginal dots beneath; sepals erect, ovate lanceolate, acute, usually very bluntly crenate; petals persistent; stamens shortly united in three sets; styles 3, not half as long as the capsule.

H. undulatum, *Schousb. in Willd. Enum.* 810 (1809). *Welw.! Iter Lus. n.* 171. *(spec). Reichenb. Hort. Botan. t.* 39.

H. Bœticum, *Boiss. Elench.* 25 (1838); *Voyage, t.* 34. *Walp. Repert.* i. 383. *Syme! in Eng. Bot.* ii. 153, *t.* 270 *bis.*

H. decipiens, *Wats.! in Lond. Journ. Bot.* iii. 589 (1844). *Walp. Repert.* v. 141.

H. Neapolitanum, *Ten.! Ind. Sem.* 1839; *Syl. Pl. Neapol.* 385. *Guss. Fl. Sic. Syn.* 379.

H. quadrangulum, *Lowe! Fl. Mad.* 79.

H. quadrangulum, ε. undulatum, *Choisy in De Cand. Prod.* i. 548.

Hypericum, sp., *Welw.! Fl. Lusit. n.* 1162 *(spec.)*

Stem 2-3 feet high. Leaves declining, more or less conspicuously wavy at the edge, abundantly uniformly and pellucidly dotted throughout. Flowers in very lax, much branched cymes. Petals yellow, with a longitudinal dash of red externally on their sinistral side, and black dots on their dextral side. Anthers with a black dot. Styles 3, divaricate.

H. perforatum (L.)—*E.B.* 295.—Woods, hedge-banks, &c. Manadon wood; Blackstone; banks of the Teign, above Fingal bridge. Milehouse!, Plymouth: *Balkw.* Teignmouth: *Jord.* in *Phytol.* 1843, p. 828. Exeter district, frequent: *Parf.* D.—Between Torpoint and St. John's!; Calstock; near Fowey. Falmouth: *Polytech.* 1856. C. *Common perforated St. John's Wort.*

H. dubium (Leers). — *E.B.* 296. — Moist places by ditches, &c. Banks of the Exe, near Cowley bridge: *Fl. Dev.* Dartmoor: *Per. Dart.* "Woods, &c., occasionally:" *Fl. Tot.* D.—"Weir, Tamar, Cornwall" (sp. *Hore*): Wats. *in epis.* Mr. G. S. Gibson has also found it in this county: *id. et ib.* C.

—— *β. maculatum.* Bodinnick, near Fowey: *Pasc.* in *Phytol.* 1847, p. 942. C.

H. humifusum (L.)—*E.B.* 1226. — Gravelly and heathy places. Bickleigh; Blackstone; Tavistock. Teignmouth: *Jord.* in *Phytol.* 1843, p. 828. Lynmouth: *Clark* in *Phytol.* 1852, p. 742. The railway, Totnes; Littlehempston: *Fl. Tot.* D.— Near Cawsand; near Saltash; between Crumplehorn and Lancellos; and elsewhere, but not entered in my notes. Falmouth: *Polytech.* 1856. Scilly islands, "common:" *Towns.* in *Journ. Bot.* ii. 108. C. *Trailing St. John's Wort.*

H. linariifolium (Vahl.) — *E.B.S.* 2851. — Roadside hedge at Blackstone!, near Tamerton (1862); left bank of r. Teign!, above Fingal bridge (1866). Morwell rocks on the Tamar: *Gould.* (1849). Near Dunsford bridge on the Teign; Belmont, near Exeter: *Rav.* D.— Cape Cornwall, near the Land's-end: *H. S. Herb.* Messrs. Borrer and Babington have also collected the plant in the last-named locality: *Hore* in *Phytol.* 1842, p. 163. C. *Linear-leaved St. John's Wort.*

Specimens of this plant from Devon * were in the possession of the Rev. W. Hinckes in 1841 (*vide* article by the Rev. W. S. Hore in *Phytol.* 1842, p. 163). Its discovery in the Plymouth district was however made some few years afterwards by Mr. F. H. Goulding, who had the good fortune to meet with it first on the Morwell rocks,—then at Blackstone; and, singularly enough, he was the first to notice it in a ramble with me a short time since on the banks of the Teign.

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* On turning to Hooker's *Brit. Fl.* ed. 5 (1842), p. 64, I find the following habitat given:—"Banks of the Teign, Devon: *Rev. T. Hincks.*" *Quære*, might not the specimens referred to have come from this locality; and are the "Rev. W. Hinckes" of the Rev. W. S. Hore, and the "Rev. T. Hincks" of Sir Wm. Hooker one and the same person?

H. hirsutum (L.)—*E.B.* 1156.—Woods and thickets. Chudleigh; Seaton; Torquay; Ilfracombe: *Rav.* Littlehempston: *Fl. Tot.* D. *Hairy St. John's Wort.*

H. montanum (L.)—*E.B.* 371.—Bushy limestone hills, quarries, and hedges. Catdown quarries, Plymouth; Pomphlet, Plymstock. Mount Batten, Plymouth!: *Hore.* "Abundant on limestone by the Yealmpton road, within a few miles of Plymouth:" *Briggs* in *Phytol.* n.s. v. 369. Teignmouth: *Jord.* in *Phytol.* 1843, p. 828. Anstice cove: *Lees* in *Phytol.* 1851, p. 241. Chudleigh, &c.: *Rav.* D. — Between Lancellos and Polruan (1866). St. Ives: *B.H.P.* "Three or four localities:" *Pasc.* in *Bot. Gaz.* ii. 39. C. *Mountain St. John's Wort.*

H. pulchrum (L.)—*E.B.* 1227.—Dry heaths, banks, woods. Saltram!; Bickleigh; Blackstone; Tavistock; banks of the Teign, above Fingal bridge. Near Laira bridge!, Plymouth: *Balkw.* Teignmouth: *Jord.* in *Phytol.* 1843, p. 828. "Woods and hedges" [about Totnes]: *Fl. Tot.* Exeter district, frequent: *Parf.* D.—Near Saltash; near Cawsand; between Talland and Polperro. Falmouth: *Polytech.* 1856. C. *Small upright St. John's Wort.*

H. elodes (L.) — *E.B.* 109. — Spongy bogs. Shaugh!; Meavy; Ivybridge; Tavistock. Near Holne-chase: *Ward* in *Phytol.* 1842, p. 21. Teignmouth: *Jord.* ib. 1843, p. 828. Bog at Bickwell: *Fl. Sid.* Frequent on and near Dartmoor; Lundy island; Tiverton; Martinhoe common: *Rav.* D.—"In most turfy bogs of the upland valleys:" *B.H.P.* Chyangall moor, near Penzance: *Gibs.* in *Phytol.* 1846, p. 678. Gwyllyn-vase, &c.: *Polytech.* 1856. Scilly: *Towns.* in *Journ. Bot.* ii. 108. C. *Marsh St. John's Wort.*

Order XVIII. ACERACEÆ.

Acer *Linn.* Maple.

A. campestre (L.)—*E.B.* 304.—Woods and hedges. Perhaps nowhere a native about Plymouth. Near Ermington; between Egg-buckland and Plym-bridge; near Tamerton. Between Northam and Abbotsham, N. D.: *Maw* in *Phytol.* 1853, p. 791. D.—Maker. C. *Maple.*

‡ *A. Pseudo-platanus* (L.)—*E.B.*303.—In hedges and plantations. Leigham; Tavistock. Manadon!: *Balkw.* The variety with variegated leaves which grew by the tram-road between Crabtree [Plymouth] and Cressbrook farm (*Briggs* in *Phytol.* n.s. v. 369) has been destroyed. D.!—Maker; near Trematon castle; Harewood. Falmouth: *Polytech.* 1856. C. *Sycamore.*

Order XIX. GERANIACEÆ.

Geranium *Linn.* Cranesbill.

† *G. phæum* (L.) — *E.B.* 322. — In woods and thickets, rare in Britain. "Naturalized on a bank near a farm between Leemill bridge and Slade:" *Briggs* in *Journ. Bot.* iv. 288. Field near Becky fall; Ponsworthy, near Widdecombe: *Fl. Dev.* Chambercombe, near Ilfracombe; Landkey: *Rav.* D.—Cardynham: *Mrs. T. Grylls* (H. S. Herb.) C. *Dusky Cranesbill.*

[*G. striatum* (L.)—Woolwell farm, near Plymouth (1865). Naturalized at Clovelly: *Rav.* Banks of the Yeo, near Barnstaple: *Phytol.* n.s. ii. 414. Shrubberies at Sharpham and Bowdon: *Fl. Tot.* Bolton wood, Teignmouth: *Mrs. Gulson* (Parf. *in epis.*) D.—St. John's, on a bank near cottages (1866). Near Castle Horneck, Penzance, "apparently wild:" *Gibs.* in *Phytol.* 1846, p. 679. Besley's *Handbook of Penzance* says "it has been found wild for the last seventy years at Alverton, and near Castle Horneck." C. *Streaked Cranesbill.*]

G. sylvaticum (L.) appears in *C.B.S.* as having been seen in Cornwall, but with the doubtful "o." It must be expunged from our list, the name of this plant having been inadvertently written for *G. sanguineum* in an article by the Rev. W. S. Hore, in *Phytol.* 1845, p. 239. *Vide* query by Mr. G. S. Gibson *ib.* 1846, p. 676; and a remark by the Rev. C. A. Johns (*ib.* 1847, p. 725) that his "friend Mr. Hore's *G. sylvaticum* was undoubtedly a slip of the pen for *G. sanguineum.*"

G. pratense (L.) — *E.B.* 404. — Thicket, Manadon hill!, near Knackersknowle, most probably introduced. Ravenshaw includes it in his list as found in moist pastures, but gives no stations. Banks of the Dart, near Bridgetown quay: *Fl.Tot.* D.—Marshy meadows, near Bodmin: *Pasc.* in *Bot. Gaz.* ii. 39. Priory lands, Bodmin: *Mrs. T. Grylls* (H.S.Herb.) C. *Crowfoot-leaved Cranesbill.*

G. sanguineum (L.)—*E.B.* 272.—In dry places, rare. Bolt-head (1859). Kingsbridge!: *Balkw.* Dartmoor: *Per.Dart.* Stoke wood; Tiverton: *Rav.* Dartington wood: *Fl. Tot.* D.—Kynance cove!*, at the Lizard (1864). N. Perran: *Miss W.* (H.S.Herb.) Perran Porth, near Truro (1864); Coverack cove (1866): *Balkw.* *Bloody Cranesbill.*

† *G. pyrenaïcum* (L.)—*E B.* 405.—Roadsides and pastures, rare. Near Yealmpton, plentiful; but, I suspect, not wild. Brixham!: *Balkw.* Dunkeswell; Torquay: *Rav.* D. *Mountain Cranesbill.*

G. pusillum (L.)—*E.B.* 385.—Waste places. Cornwood? (1860). Pomphlet and near Plymstock: *Briggs* in *Phytol.* n.s. iv. 369. In Ravenshaw's list, but no localities given. D. — Luxillion: *Ward* (Pasc. *in* Bot. Gaz. ii. 39). Near Glendurgan, "rare:" *Polytech.* 1856. C. *Small-flowered Cranesbill.*

G. dissectum (L.)—*E.B.* 753. — Waste places and hedges. Plymouth!, common; Bickleigh; Saltram. D. — Saltash; Looe. Falmouth: *Polytech.* 1856. Scilly islands, "frequent:" *Towns.* in *Journ. Bot.* ii. 109. C. *Jagged-leaved Cranesbill.*

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* The specimen in our herbarium from this locality was collected by the late Dr. J. Jacob.

G. columbinum (L.)—*E.B.*259.—On gravelly and limestone soils. Frequent about Plymouth; Compton; Lipson; Bickleigh. Laira bridge, Plymouth!: *Balkw.* Near Teignmouth: *Jord.* in *Phytol.* 1843, p. 828. Anstice cove: *Lees* ib. 1851, p. 241. D.—Between Torpoint and St John's; Calstock; Saltash; near Lancellos. Falmouth: *Polytech.* 1856. C. *Long-stalked Cranesbill.*

G. rotundifolium (L.)—*E.B.* 157.— Old walls, dry hedges, and waste places. Not generally distributed throughout Britain. Plentiful in the immediate neighbourhood of Plymouth, extending from Woodside to Longbridge on the Plym, from Pennycomequick to Milehouse!, and from Tothill to Crabtree, &c. Dartmouth castle; Heavitree; Sidmouth: *Rav.* D.—Between Torpoint and Antony; between Cawsand and Rame; between Cremyll and Kingsand. Wilcove: *Briggs* in *Journ. Bot.* iii. 349. C. *Round-leaved Cranesbill.*

G. molle (L.) — *E.B.* 778. — Dry places. Abundant about Plymouth!; under the Citadel there, where also a white-flowered var. grows. General throughout the county. D. — Between Torpoint and St. John's; near Cawsand; Calstock; Saltash; near the Land's-end. Falmouth, both purple- and white-flowered: *Polytech.* 1856. C. *Dove's-foot.*

G. lucidum (L.)—*E.B.* 75.—Walls and hedge-banks. More frequent in S. Devon than in the N. Common about Plymouth; Tavistock. Milehouse, near Plymouth!: *Balkw.* Near Teignmouth: *Jord.* in *Phytol.* 1843, p. 828. Anstice cove: *Lees* ib. 1851, p. 241. Between Exeter and Topsham; Ilsham, near Torquay; Trentishoe; Tiverton: *Rav.* D.—Near Torpoint, but not so common as on the Devon side of the Tamar. Panscoth lane, "rare:" *Cocks* (Polytech. 1856). C. *Shining Cranesbill.*

G. robertianum (L.)—*E.B.* 1486.—In every hedge around Plymouth!; it also frequently grows on stony ground, *e. g.* at West Hoe, where I gathered some specimens in 1861; Bickleigh; Saltram ; Tavistock. It is common throughout the county. Torquay *(fl. alb.)* : Parf. D.—Maker ; between Torpoint and St. John's ; Calstock ; Saltash, &c. Falmouth : *Polytech.* 1856. C. *Herb-Robert.*

—— γ. *G. purpureum* (Forst.)—*E.B.S.* 2648.—Rock-walk, Torquay ; Waldon hill ; Meadfoot cliffs : *Rav.* D.—It has been seen in Cornwall : *Pasc.* (auct. *Wats.* MS.) C.

Erodium *L'Hérit.* Storksbill. Heron's-bill.

E. cicutarium (Sm.) — *E.B.* 1768. — Waste ground and sandy fields. Catdown !, Plymouth. Teignmouth *(fl. alb.)* : Jord. *in* Phytol. 1843, p. 828. Braunton and Northam burrows : *Maw* in *Phytol.* 1853, p. 788. Topsham ; Dawlish warren ; Paignton sands ; Tiverton : *Rav.* D.—Penlee point ; Tregantle fort ; between Penzance and Marazion, both purplish- and white-flowered. Whitsands !; St. Minver : *Balkw.* Pendennis and Gwyllyn-vase, both purple and white : *Polytech.* 1856. Whitsand bay *(fl. alb.)* : Hore. C. *Hemlock-leaved Storksbill.*

Mr. Townsend, in his paper on the Flora of the Scilly isles (*Journ. Bot.* ii. 109) describes a variety of this species (*a.* pilosum, *Reich.* ; E. pilosum, *Bor.*) which he found on sandy ground at St. Martin's and elsewhere. He says the whole plant is very sweet smelling, with quite a different scent from that of *E. cicutarium.*

E. moschatum (Sm.) — *E.B.* 902. — Waste places. As common with us as the previous species, but rather rare in other places. Hoe ! and under the walls of the Citadel, Plymouth. Exmouth : *Jord.* in *Phytol.* 1843, p. 828. Bideford, &c., N. D. : *Maw* ib. 1853, p. 791. Dawlish ; Teignmouth ; Torquay : *Rav.* D. — Near Cawsand, descending from Maker heights ; Looe. Whitsand bay ! : *Hore.* Penzance : *Gibs.* in *Phytol.* 1846, p. 678. Penryn and Killigrew roads : *Polytech.* 1856. Maker : *Briggs* MS. "Occasionally on Chy-an-dour cliff :" *B.H.P.* Scilly islands, "occasionally :" *Towns.* in *Journ. Bot.* ii. 109. C. *Musky Storksbill.*

E. maritimum (Sm) — *E.B.* 646. — Sandy and gravelly places, particularly near the sea; rare as a British plant. Lynmouth; Clovelly; Teignmouth; Torquay; Woollacombe: *Rav.* Near Mortehoe, N. D.: *Briggs* MS. Ilfracombe: *Gibs.* in *Phytol.* 1846, p 682. Braunton burrows: *Maw* in *Bot. Gaz.* ii. 194. D. — Mount Edgcumbe; Penlee point; Rame; Whitsand bay!; Trevenna; near Marazion. Near Penzance, and on St. Michael's mount: *Gibs.* in *Phytol.* 1846, p. 677. N. Perran: *Miss W.* (H.S.Herb.) St. Just: *Briggs* MS. C. *Sea Storksbill.*

(To be continued).

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